HOW TO USE ARITHMETIC

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How to Use Arithmetic

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THE WORLD OF NUMBERS

How to Use Arithmetic

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CHAPTER

1

Numbers and Groups

UNIT 1 GETTING READY FOR ARITHMETIC

School for Dogs

(Vocabulary of size and comparison)

1. This is a school for dogs. What are the dogs in the picture doing?

2. Which dog is the **smallest**? Which dog is the **tallest**?

3. One boy is **taller** than the other. Is his dog taller than the other boy's dog?

4. One girl is **smaller** than the other. Is her dog smaller or **bigger** than the other girl's dog?

5. One dog is not good in school. Which one is he? Which dogs are **larger** than he is? Which dogs are smaller?

6. How many dogs are in school? How many people? Are there more dogs or more people?

7. Who has the **biggest** dog? Who has the smallest dog?

8. How many **big** dogs do you see? How many **little** dogs? Are there **more** or **fewer** big dogs?

9. Which dogs have **less** hair than the others?

10. Do you have a dog? Which dog in the school for dogs is as big as your dog?

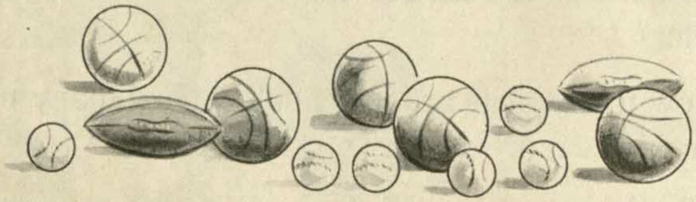
11. Draw some dogs. Draw one little one. Draw one larger. Draw one **largest** of all.

Is It a Group?

(Oral discussion)

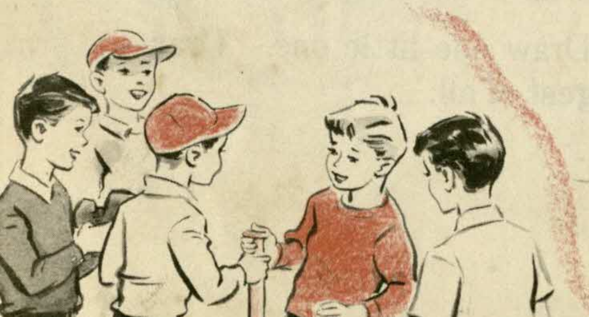
1. Look at the picture above. Do you see a **group** of boys? Do you see a group of balls? How many must you have in a group?

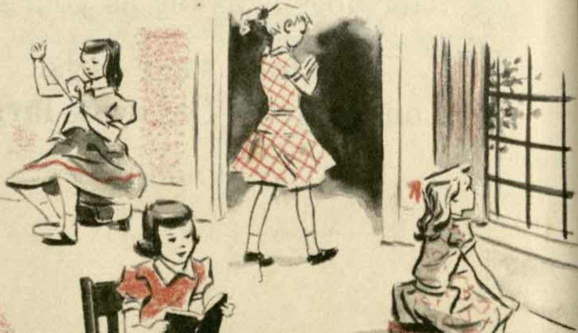
2. How many kinds of balls do you see on the table? Balls that are alike should go together. How would you group them? Tell how many balls you would put in each group.



3. Look at the pictures below. Why do the boys look like a group? Why do the girls not look like a group?

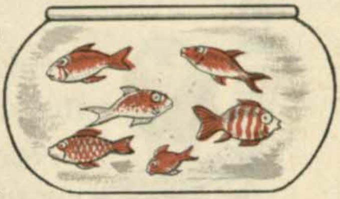
▶ It takes more than one to make a **group**. The things in a group must be alike. The things in a group are together.





Larger and Smaller Groups

(Oral discussion)

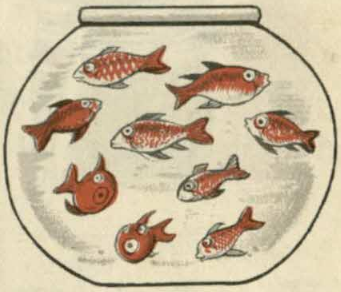


A

1. Which picture shows the largest group of fish? The smallest group?

2. Look at Group **A.** Which other groups are larger?

3. Look at Group **C.** Which other groups are larger? Which is smaller?

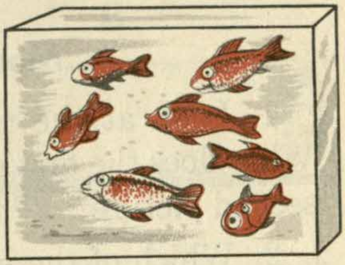


B

4. Look at Group **D.** Which group is next smaller? Which group is next larger?

5. Does Group **A** have more or fewer fish than **C**?

6. Which groups have fewer fish than **B**?

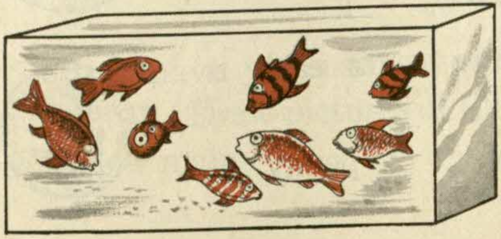


C

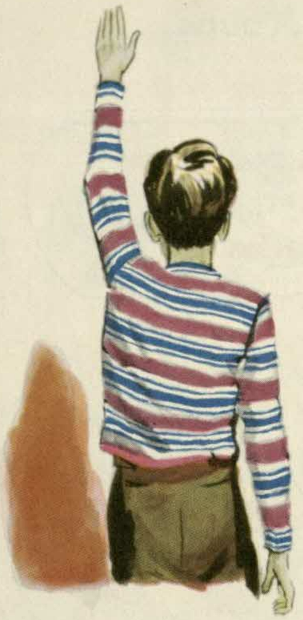
7. How many more fish are there in Group **B** than in **A**?

8. Which group has no other group that is next smaller?

9. Ted likes to keep fish. Which group do you think he would like most to get?



D



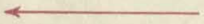
Left and Right

In the picture we see Tom's back. He is looking the same way you are.

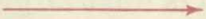
1. Which hand does Tom have up? Is it his **right** hand or his **left** hand?

2. Is Tom's picture to the left or right on this page?

3. Does **A** below tell you to go to the right or the left? Which way does **B** tell you to go?



A

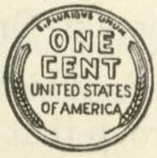


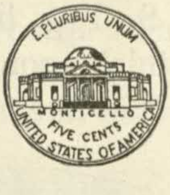
B

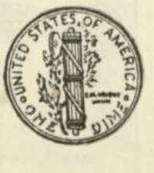
4. When a man meets someone the first time, does he put out his left hand or his right hand?

Money

1. Look at the money at the right. What does the first picture show? The second picture? The last picture?







2. Which of these pictures shows the most money? The least money?

▶ A penny is worth 1 cent.
A penny is worth 1¢.

3. Write how many cents each is worth:

a. dime *b.* nickel *c.* penny

Numbers Tell How Many

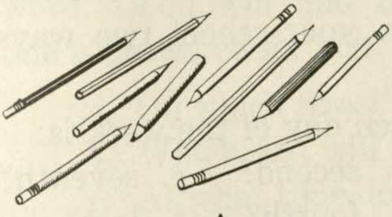
1. Write the numbers that tell:

a. how old you are.
b. how far you live from school.
c. how many books you have in school.
d. how many pencils you have.
e. how many children are in your room.

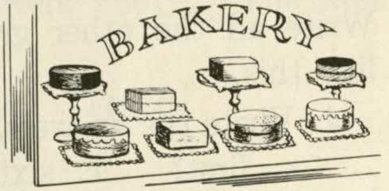
2. Look around the room. Write the numbers that tell:

a. how many windows.
b. how many doors.
c. how many tables.
d. how many pictures.

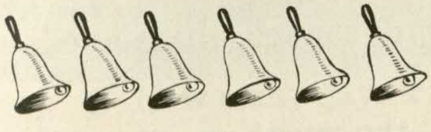
3. Write the number that tells **how many** for each picture:



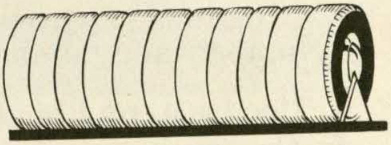
A



B



C

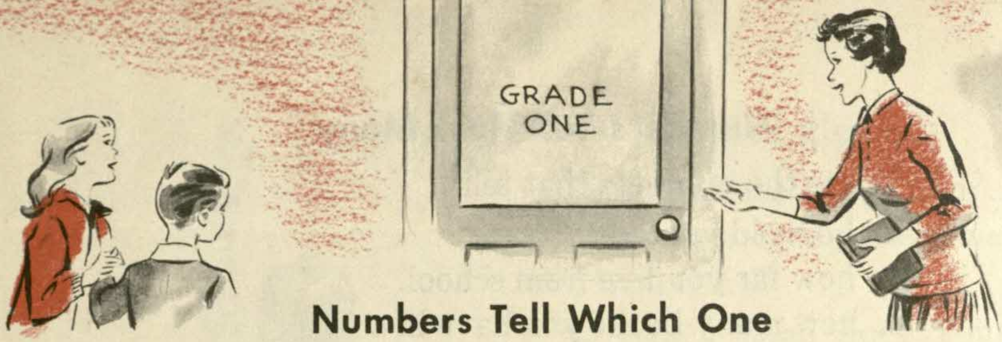


D

4. Write the numbers from 1 to 20. After each number, write the same number as a word, like this:

1 one
2 two

★**5.** How have you used numbers this week to tell how many? Draw pictures of things you have counted to find how many.



Numbers Tell Which One

1. Sally is taking her little brother to school. This will be his first day in the first grade. Does it say First Grade on the door? What does it say?

2. Write all the grades in your school. Write each one two ways, like this:

Grade One *First Grade*

3. You can write the same thing with numbers that are not words, like this: *Grade 1* *1st Grade*

Write all the other grades in your school two ways like this.

4. Write the answers. Which day of the week is:

a. first? *c.* sixth? *e.* second? *g.* seventh?
b. third? *d.* fifth? *f.* fourth? *h.* last?

> Numbers and number words can tell **which one.**

5. On your paper write the numbers or number words that will tell **which one**:

a. Which grade are you in? Grade______
b. Which grade were you in last year? ______Grade
c. Which grade comes after the 4th grade? ______Grade
d. Which grade comes before Grade 6? Grade______

Which One or How Many?

(Oral work)

1. Look at each number or number word. Does it tell **which one** or **how many**?

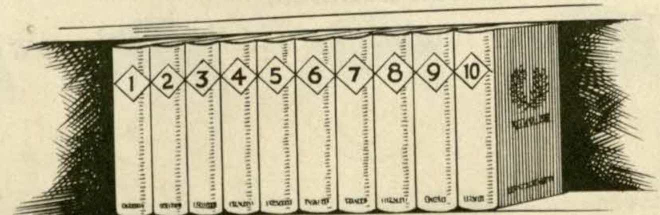
a. This is page 7.
b. I live on Tenth Street.
c. We have 34 children in the room.
d. I will have the first seat.
e. We need 5 more boys to play ball.
f. I get up every morning at 7 o'clock.
g. I go to school five days a week.
h. I eat 3 times a day.

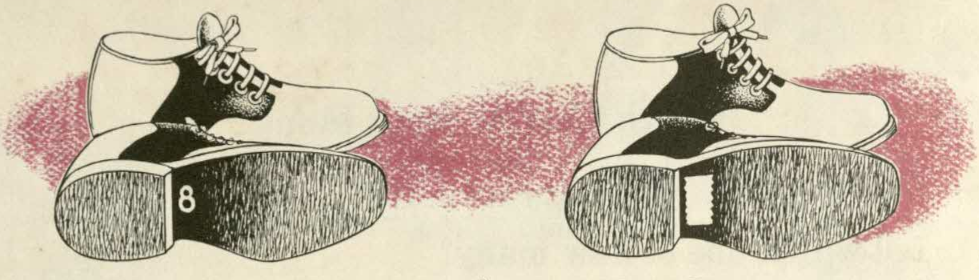
2. Answer each question with a number or a number word. You will find the answers above. The first one is answered for you.

a. On which street do I live? Tenth.
b. Which seat will I have?
c. At what time do I get up?
d. What page is this?
e. How many boys are needed to play ball?
f. How many times a day do I eat?
g. How many days a week do I go to school?
h. How many children do we have in the room?

3. Look at the numbers on the books below. What does each number tell? Does it tell how many or which one?

4. How many books are there in the picture? Where do you see that number? That number tells which one and it also tells how many in all.





What Number Is Next?

1. Sue is buying new shoes. She got size 8 last time. She needs one size larger this time. What size shoes does Sue need?

2. Mary's shoes are size 8. Sally's shoes are one size smaller. What size are Sally's shoes?

3. What number is larger than 7 and smaller than 9?

4. What two numbers are larger than 5 and smaller than 8?

5. What number is next larger than each of these numbers?

a. 4 *b.* 1 *c.* 2 *d.* 5 *e.* 6 *f.* 3 *g.* 7 *h.* 8 *i.* 9

6. What number is next smaller than each of these numbers?

a. 4 *b.* 5 *c.* 3 *d.* 8 *e.* 2 *f.* 6 *g.* 7 *h.* 9 *i.* 10

7. Copy these numbers from smallest to largest:

6 3 2 7 8 10 4 9 5

8. Copy the same numbers from largest to smallest.

9. Here is a new row of numbers.

9 12 5 18 4 1 10 7 8

a. What is the fifth number in the row?
b. What is the third number in the row?
c. What is the 6th number?
d. What is the 9th number?
e. How many numbers are in the whole row?

Pairs

(Oral work)

1. What are the boys in the picture doing? How many are there? Count them like this: 1, 2, and so on.

2. The boys are in **pairs**. How many are in a pair?

3. Count the boys by pairs, or by twos. When we count by twos, what numbers do we say?

4. Which is easier, to count by ones or by twos? Which way is quicker? Why?

5. Look at the picture below. Dick lives on a farm. He is looking for eggs. Each nest we see has 2 eggs in it. Count them by twos.

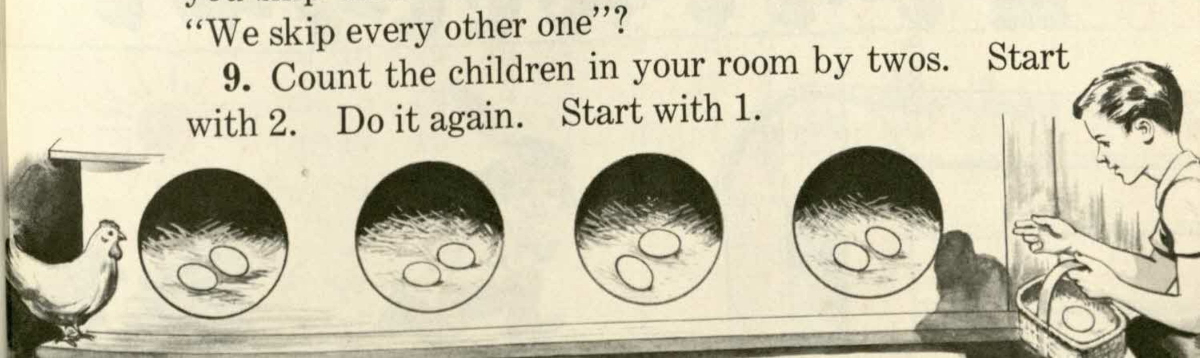
6. Dick had 1 egg in his basket. He took the eggs out of these nests two at a time. He counted the eggs this way: 1, 3, and so on. How many eggs did Dick count? Why did he start counting with 1?

7. Read the red numbers. Then read the other numbers. Both ways you are counting by twos.

1 2 3 4 5 6 7 8 9 10

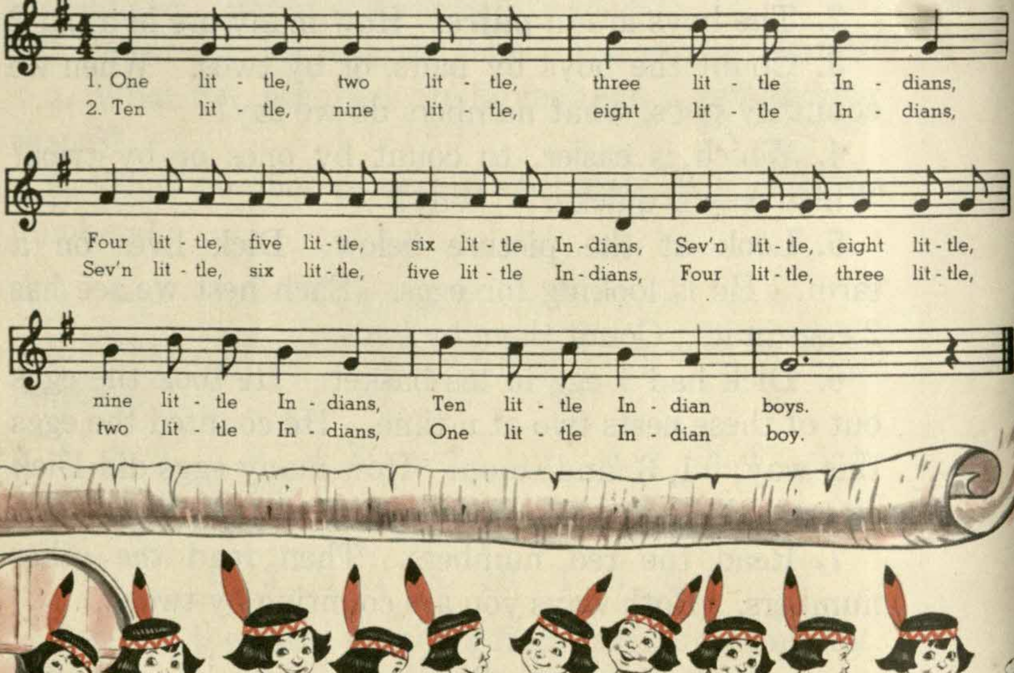
8. When you count by twos, how many numbers do you skip each time? What do we mean when we say, "We skip every other one"?

9. Count the children in your room by twos. Start with 2. Do it again. Start with 1.



Ten Little Indians

Old Song


1. One lit - tle, two lit - tle, three lit - tle In - dians,
2. Ten lit - tle, nine lit - tle, eight lit - tle In - dians,
Four lit - tle, five lit - tle, six lit - tle In - dians, Sev'n lit - tle, eight lit - tle,
Sev'n lit - tle, six lit - tle, five lit - tle In - dians, Four lit - tle, three lit - tle,
nine lit - tle In - dians, Ten lit - tle In - dian boys.
two lit - tle In - dians, One lit - tle In - dian boy.

Counting Forward and Backward

1. Sing the song, "Ten Little Indians." Play you are little Indians.

2. Now sing the song with these words. Act it out this way too.

Two little, four little, six little Indians,
Eight little, ten little, twelve little Indians,
Fourteen, sixteen, eighteen Indians,
Twenty little Indian boys.

Twenty, eighteen, sixteen Indians,
Fourteen, twelve little, ten little Indians,
Eight little, six little, four little Indians,
Two little Indian boys.

3. Use books, pencils, or sticks to do this:

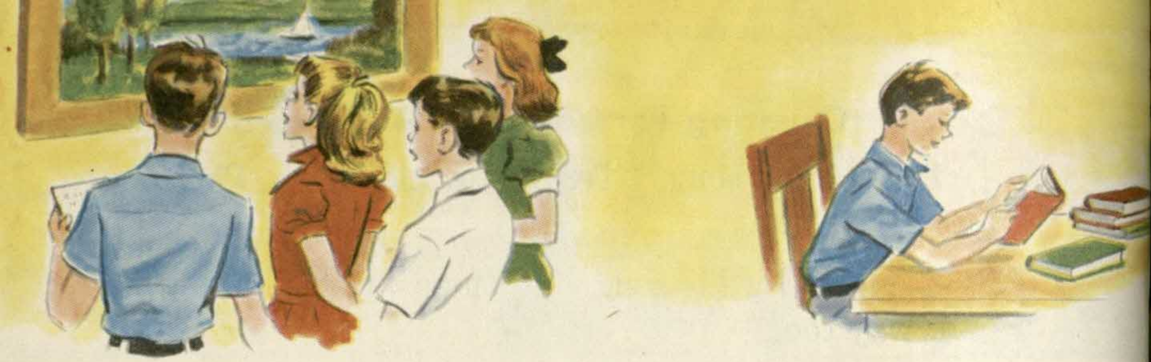
a. Count out 20 things one at a time. Put them in a row as you count them.

b. Now take them away one at a time. Count backward.

4. Count the same things forward and backward again. This time count forward by twos. Count backward by twos.

★**5.** Copy these numbers. Write in the numbers that should be where the question marks are.

a. 4 6 ? ? 12 14 ? 18 20
b. 18 16 14 ? ? 8 6 4 2
c. 5 6 7 ? 9 ? ? ? 13 14
d. 17 15 13 ? ? 7 5 3 1
e. 1 3 5 7 ? ? ? ? 17 19

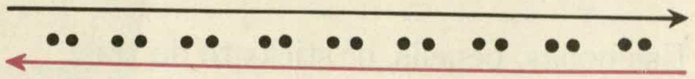


Review of Unit 1

1. What group do you see in the picture above? How do you know it is a group? What is a group?

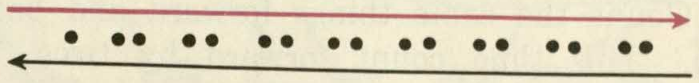
2. One boy is not in the group. Is he at the left or right in the picture?

3. These are arrows: ⟶ ⟵
The arrows below tell you which way to go. Count by ones. First follow the black arrow. Then follow the red arrow and count backward.



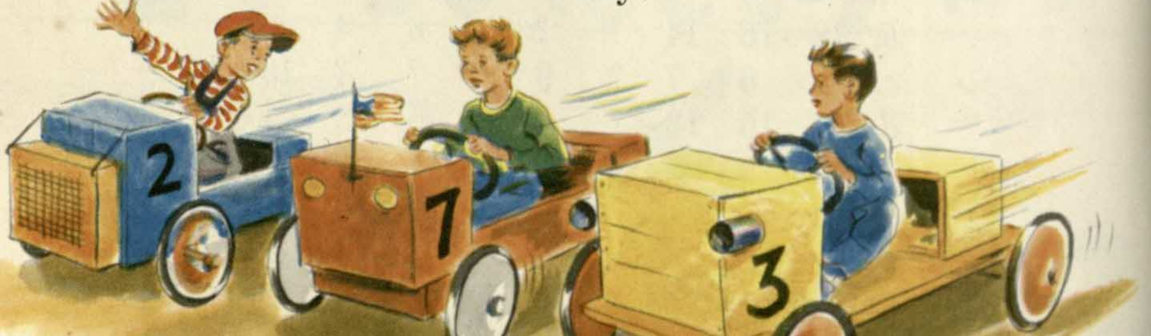
4. Follow the same arrows. Count forward by twos. Then count backward by twos.

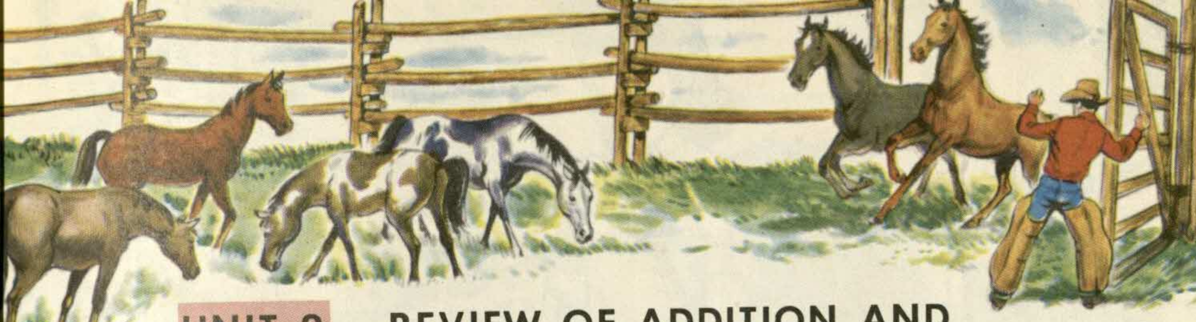
5. Count again. Follow the red arrow below. Start with 1. Then count by groups of two.



6. Now follow the black arrow. Start with 17. Count backward by twos as far as you can.

7. Look at the numbers in the picture below. Do they tell which one or how many?





UNIT 2 REVIEW OF ADDITION AND SUBTRACTION

Putting Groups Together

1. What is the man in the picture doing?

2. First there was one group of horses. How many horses were in that group?

3. Then a new group came in. How many horses were in that group?

4. The cowboy brought the two groups of horses together. Add the horses. How many are there? Write what you thought when you added.

▶ **Add** means put together.

5. How did you tell the story when you added? Which way did you write the story? All these ways are right.

5 horses and 2 horses are 7 horses
5 horses plus 2 horses equal 7 horses
5 horses + 2 horses = 7 horses
$5 + 2 = 7$

$$\begin{array}{r} 5 \text{ horses} \\ +2 \text{ horses} \\ \hline 7 \text{ horses} \end{array} \qquad \begin{array}{r} 5 \\ +2 \\ \hline 7 \end{array}$$

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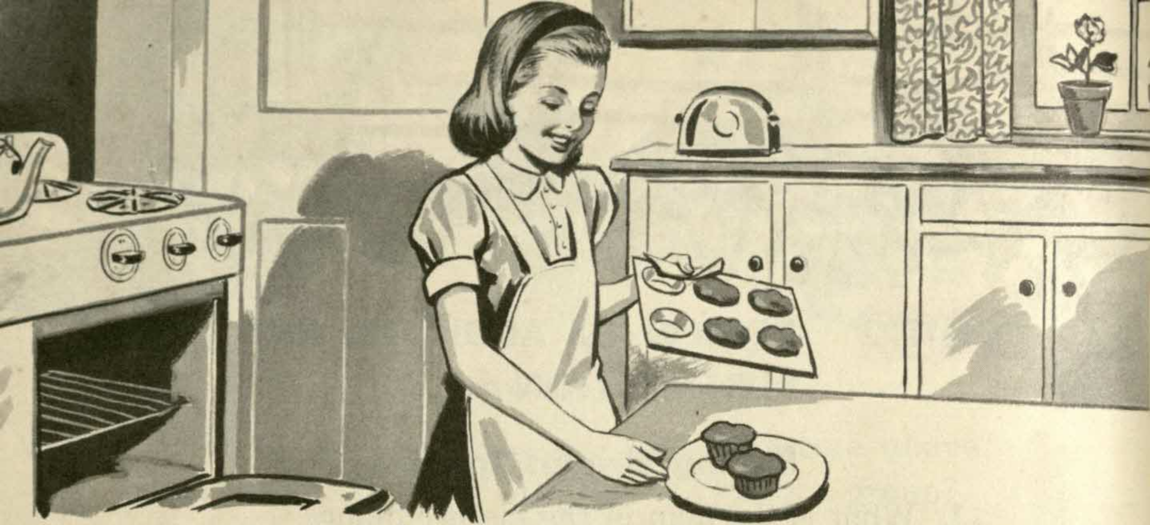


Taking a Group Apart

1. What has Sue been doing?

2. How many little cakes are there in all?

3. How many cakes did Sue take out of the pan?

4. How many cakes are left in the pan? Subtract. Write what you thought when you subtracted.

▶ **Subtract** means take apart.

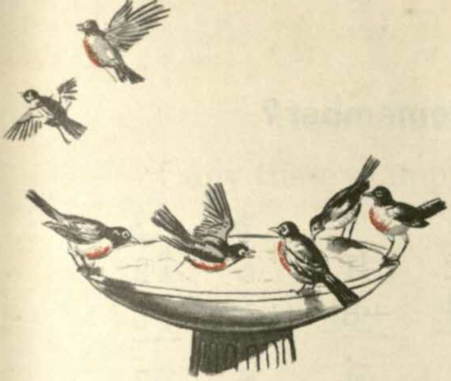
Sue took a group of 6 cakes apart. She made new groups. She put 2 cakes in one group. She left 4 cakes in the other group.

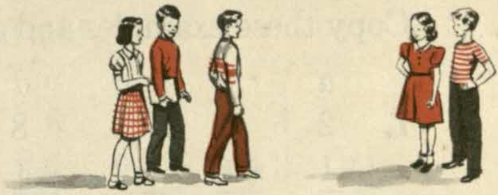
5. How did you tell the story when you subtracted? Which way did you write the story? All these ways are right.

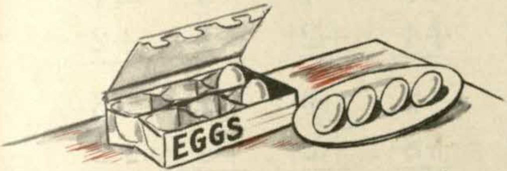
2 cakes from 6 cakes are 4 cakes
6 cakes less 2 cakes are 4 cakes
6 cakes minus 2 cakes equal 4 cakes
6 cakes − 2 cakes = 4 cakes

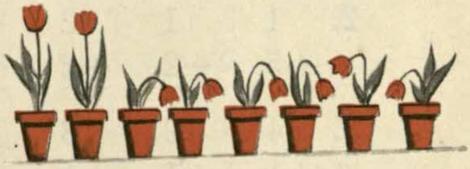
$$6 - 2 = 4$$

$$\begin{array}{r} 6 \text{ cakes} \\ -2 \text{ cakes} \\ \hline 4 \text{ cakes} \end{array} \qquad \begin{array}{r} 6 \\ -2 \\ \hline 4 \end{array}$$









Put Together or Take Apart

1. Here are 9 number facts. Read them.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
7	5	8	2	2	2	8	6	5
−2	−3	−2	+3	+4	+6	−6	−4	+2
5	2	6	5	6	8	2	2	7

2. Two number facts go with the bird picture. Write them.

3. Two number facts go with the picture of the children. Write them.

4. Two number facts go with the egg picture. Write them.

5. Three facts go with the flower picture. Write them.

6. Some of the number facts **put groups together**. Write those facts.

7. Some of the number facts **take groups apart**. Write those facts.

★**8.** Draw a picture of your own. Write a "put together" fact to go with it. Write a "take apart" fact to go with it.

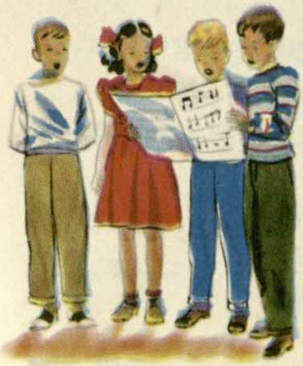
How Much Do You Remember?

Copy these examples and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	2 +1	1 +6	5 +2	8 +1	2 +4	1 +8	5 +1	2 +6
2.	1 +5	1 +2	2 +2	3 +2	1 +4	4 +2	6 +1	7 +2
3.	4 +1	9 +1	3 +1	1 +1	2 +8	9 +2	1 +3	6 +2
4.	2 +3	7 +1	8 +2	1 +7	2 +5	2 +7	2 +9	1 +9

Copy these examples and subtract:

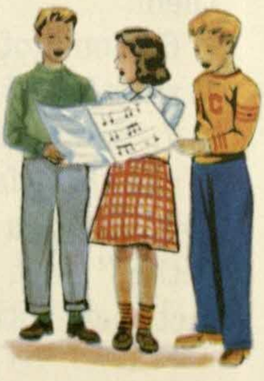
5.	3 −1	4 −2	3 −2	4 −1	2 −1	5 −4	6 −2	5 −2
6.	5 −1	4 −3	8 −6	6 −1	5 −3	7 −6	7 −2	6 −4
7.	6 −5	8 −2	8 −1	7 −5	9 −2	9 −1	8 −7	9 −8
8.	9 −7	7 −1	10 −2	11 −2	10 −1	11 −9	10 −8	10 −9



More or Fewer

1. Which group has **more** children? Which group has **fewer**?

★**2.** What do we call a group of 4 singers? A group of 3 singers?



How Much Do You Remember?

Copy these examples and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	3 +3	4 +5	6 +3	3 +4	5 +7	4 +3	3 +6
2.	4 +4	7 +4	5 +4	4 +6	3 +5	3 +7	5 +6
3.	3 +8	5 +5	4 +7	6 +5	7 +5	8 +4	5 +3
4.	3 +9	7 +3	8 +3	6 +6	6 +4	9 +3	4 +8

Copy these examples and subtract:

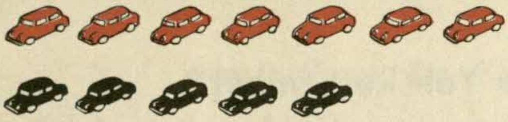
5.	6 −3	10 −4	11 −8	9 −5	12 −3	10 −3	11 −5
6.	10 −5	7 −4	11 −4	8 −5	9 −3	12 −4	11 −6
7.	8 −4	7 −3	8 −3	9 −6	10 −7	10 −6	12 −7
8.	12 −8	11 −7	12 −6	12 −9	9 −4	11 −3	12 −5

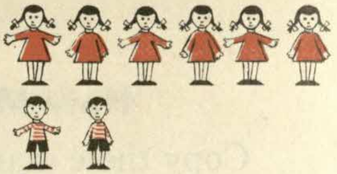
▶ The answer in addition is called the **sum.**

▶ The answer in subtraction is called the **remainder** or **difference.**

▶ **Remainder** means "how many left."

▶ **Difference** means "how much more" or "how much less."





You Put Together or You Take Apart

Read each story problem. Should you put groups together? Should you take groups apart? Tell what you should do to work each problem.

1. You have 2 old pencils and 5 new pencils. How many pencils do you have in all?

2. Ted had 12 toy cars. He lost 5 of them. How many cars does he have now?

3. You had 9 pennies. You put 4 pennies in your penny bank. How many pennies did you keep out of the bank?

4. Dick had 10 sheets of paper. He used 7 sheets. How many sheets did he have left to use?

5. Mary has 2 small sheets of paper and 7 big sheets. How many sheets of paper does Mary have?

6. Sally has 6 girl paper dolls. She has 2 boy paper dolls. How many paper dolls does Sally have?

When you put groups together, you add.
When you take a group apart, you subtract.

Now work all the problems. Write your work. Add when you put groups together. Subtract when you take a group apart.

★7. You had 6 pennies in one pocket and 5 pennies in another pocket. You took out 3 of the 6 pennies and put them with the 5 pennies in the other pocket. Which group did you take apart? What groups did you put together? Work the problems. Write your work.

How Well Can You Work Problems?

(Problem Test 1)

1. Mary had a party after school one day. She asked 10 children to come, but 2 of them could not come. How many children came to the party?

2. If 8 children came, how many were at the party, counting Mary?

3. Mary's mother made 5 paper baskets. Mary made 4. How many baskets was that all together? Could all the children have one basket each?

4. There were 13 cookies on a plate. After 4 children each took one, how many cookies were left?

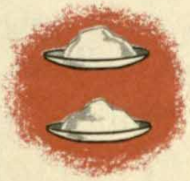
5. Mary had 9 plates to put on the table. When she had put 5 plates on the table, her mother called her. How many more plates did she still have to put on the table?

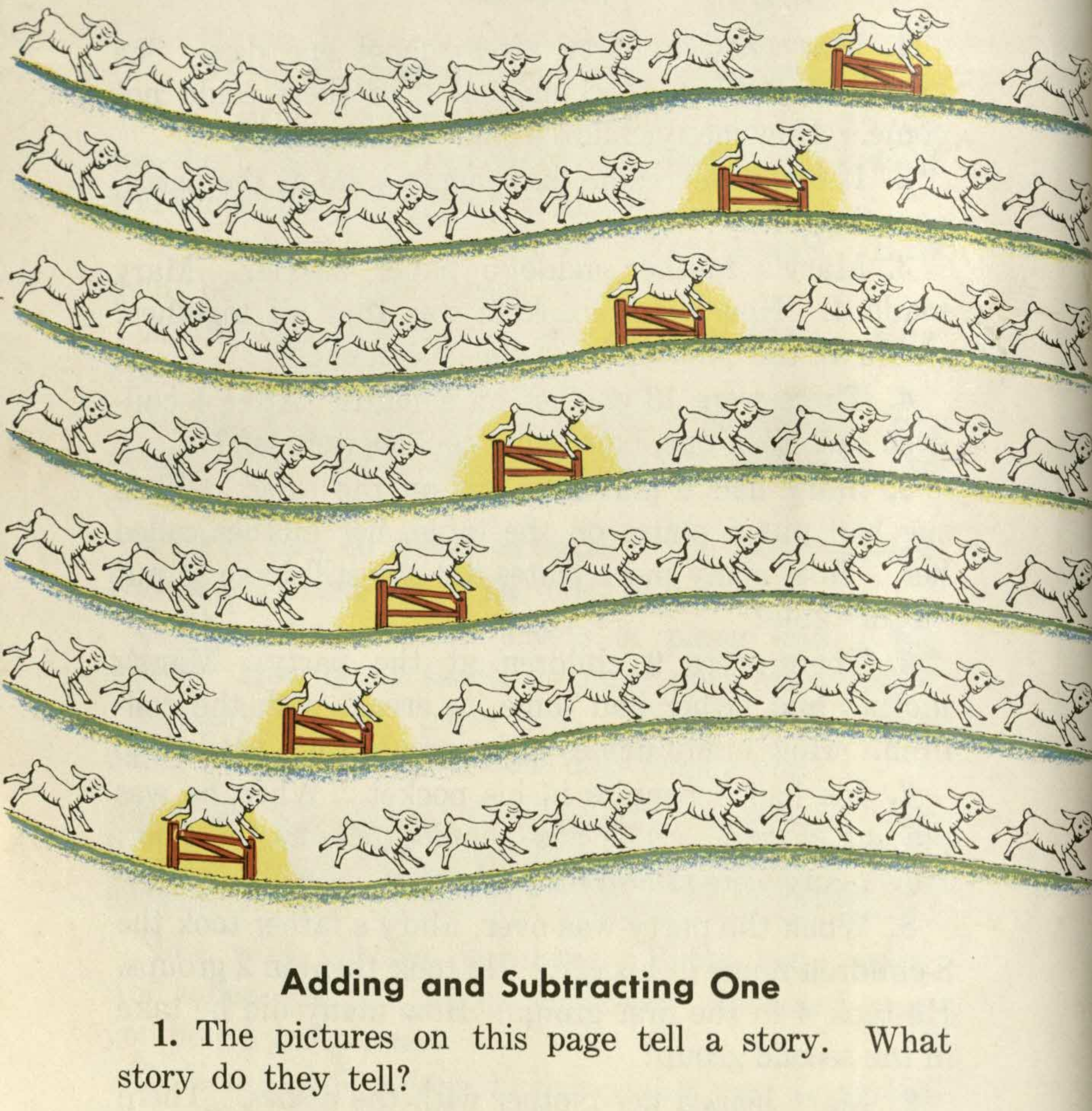
6. There were 9 children at the party. Mary's mother and father had some ice cream with the children. How many dishes of ice cream were needed?

7. Joe had 6 pennies in his pocket. When he was playing a game, 2 of his pennies fell on the floor. How many were still in his pocket?

8. When the party was over, Mary's father took the 8 children home in his car. He took them in 2 groups. He took 4 in the first group. How many did he take in the second group?

9. Mary helped her mother with the dishes. There were 11 ice-cream dishes. She washed all but 2 of them. How many ice-cream dishes did Mary wash?





Adding and Subtracting One

1. The pictures on this page tell a story. What story do they tell?

2. In the first picture, look for these number facts:

$8 - 1 = 7$ $1 + 1 = 2$

3. What number facts does the second picture show?

4. Write a subtraction fact for each of the pictures on page 20.

5. Write an addition fact for each picture.

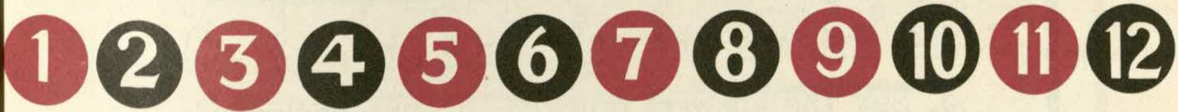
6. Now say all the answers to your addition facts. When you say these answers, it is like counting. Is it like counting forward or backward?

> When you add 1 to a number, it is just like counting forward.

7. Say the answers to the subtraction facts you wrote. Is it like counting forward or backward?

> When you subtract 1 from a number, it is just like counting backward.

8. What color are the **even** numbers below? What color are the **odd** numbers?



★**9.** Is your answer odd or even:
- *a.* when you add 1 to an even number?
- *b.* when you add 1 to an odd number?
- *c.* when you subtract 1 from an even number?
- *d.* when you subtract 1 from an odd number?

★**10.** How old are you? How old were you last year? One of your answers is an odd number. One is an even number. Why?

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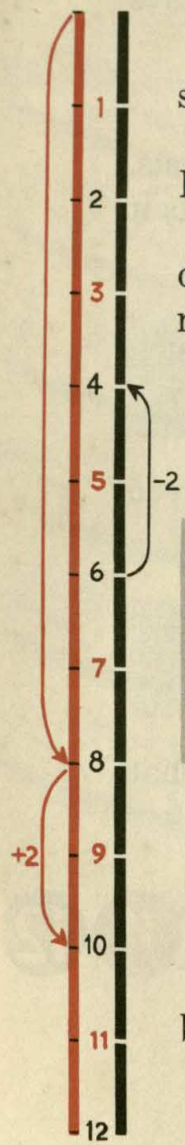
Adding and Subtracting Two



1. The red number line shows a number fact. It shows 8 + 2 = 10.

2. The black number line shows a number fact. It shows 6 − 2 = 4.

3. Draw number lines on your paper. Draw one line for each number fact below. Show the number fact on the line.

$$\begin{array}{rrrrrrrrr} 5 & 9 & 6 & 10 & 9 & 7 & 7 & 11 & 2 \\ +2 & -2 & +2 & -2 & +2 & -2 & +2 & -2 & +2 \\ \hline 7 & 7 & 8 & 8 & 11 & 5 & 9 & 9 & 4 \end{array}$$

When you add 2 to a number, you skip one number. It is like counting by twos.

When you subtract 2 from a number, you skip one number going backwards. It is like counting backwards by twos.

4. Say the answers quickly. Count by twos.

$$\begin{array}{rrrrrrrrr} 1 & 3 & 5 & 7 & 9 & 2 & 4 & 6 & 8 \\ +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2 \\ \hline \end{array}$$

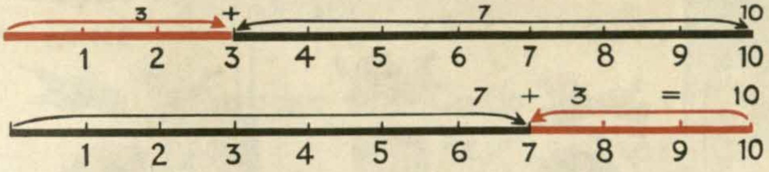
5. Say the answers quickly. Count backwards by twos.

$$\begin{array}{rrrrrrrrr} 10 & 8 & 6 & 4 & 11 & 9 & 7 & 5 & 3 \\ -2 & -2 & -2 & -2 & -2 & -2 & -2 & -2 & -2 \\ \hline \end{array}$$

★6. Is your answer even or odd?

a. When you add 2 to an even number? To an odd number?

b. When you subtract 2 from an even number? From an odd number?



These Facts Go Together

1. See the number lines above. What two addition facts do they show? How are these two facts alike? How are they not alike?

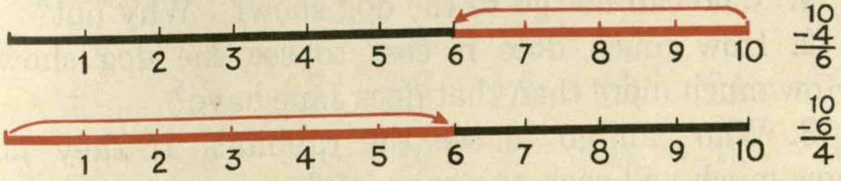
2. Look at the addition pairs below. Which pairs have the same answer? Why?

$$\begin{array}{rrrrrrrr} 2 & 8 & 7 & 4 & 4 & 5 & 9 & 1 \\ +8 & +2 & +4 & +7 & +5 & +4 & +1 & +9 \\ \hline \end{array}$$

3. Which of the addition pairs above do not have the same answer? Why not?

The same two numbers always have the same sum.

4. See the number lines below. What two subtraction facts do they show? How are these facts alike? How are they not alike?

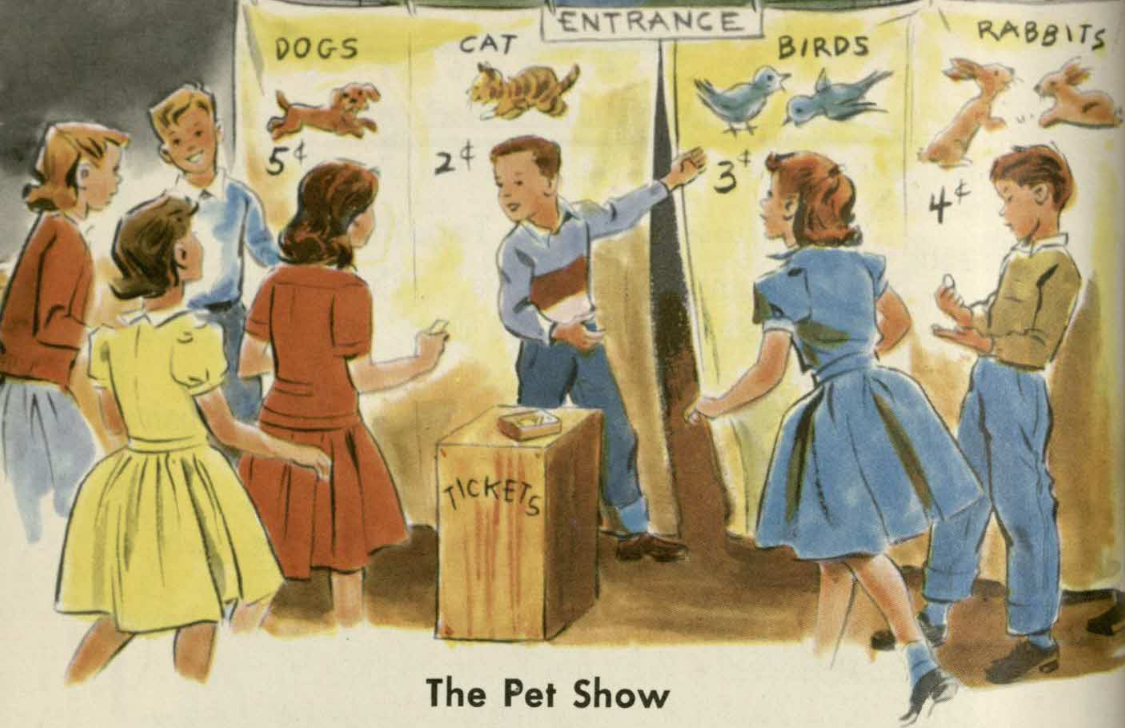


5. Which of the subtraction pairs below go together the way $10 - 4 = 6$ and $10 - 6 = 4$ do?

$$\begin{array}{rrrrrrrr} 8 & 8 & 11 & 11 & 9 & 9 & 12 & 12 \\ -5 & -3 & -6 & -5 & -3 & -6 & -6 & -3 \\ \hline \end{array}$$

6. Which of the subtraction pairs above do not go together? Why not?

7. Copy the addition and subtraction pairs in numbers 2 and 5 that go together. Write the answers.



The Pet Show

Here are the names of eight boys and girls. See how much money each child has.

Jane 7¢	Carl 3¢	Sally 11¢	John 6¢
Ted 8¢	Dick 9¢	Mary 5¢	Sue 10¢

1. Who can not go to the dog show? Why not?

2. How much does it cost to see the dog show? How much more than that does Jane have?

3. Who can go to see the rabbits? If they do, how much will each one have left?

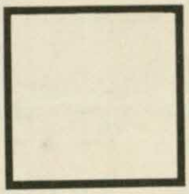
4. How much does it cost to see both:

a. the dogs and the cat?
b. the dogs and the birds?
c. the dogs and the rabbits?
d. the rabbits and the birds?
e. the cat and the birds?
f. the rabbits and the cat?

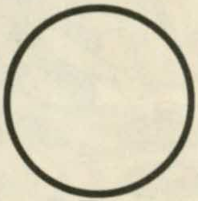
Write all the number facts you have used.

Square and Circle

Look at all the pictures on this page. Which ones show circles? Which ones show squares?



A



B

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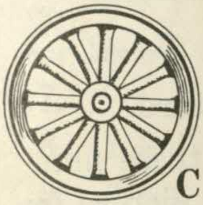

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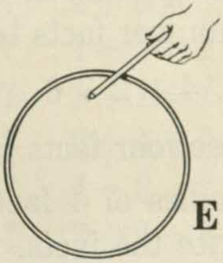


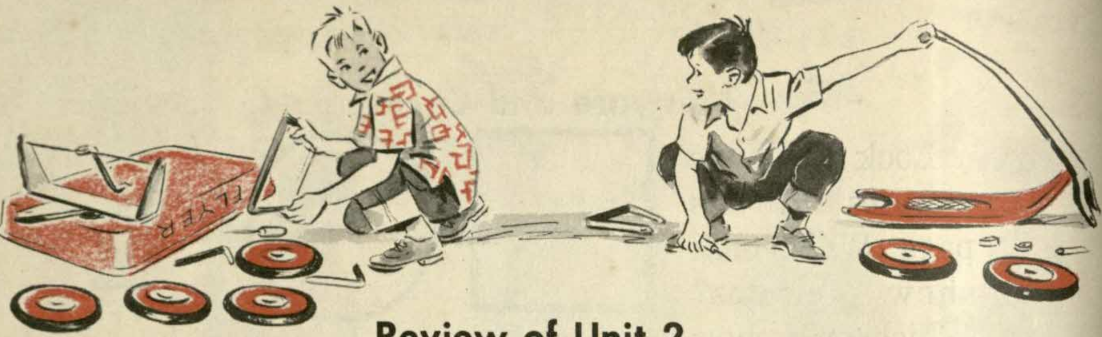
E

F

Try Your Skill

Copy the examples below. Write the answers.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	6 +4	4 +4	6 +3	3 +8	5 +6	4 +6	7 +5	8 +3
2.	6 +5	3 +5	4 +8	6 +6	3 +6	2 +9	8 +4	5 +7
3.	10 −3	9 −8	10 −8	10 −5	11 −3	12 −7	11 −9	10 −9
4.	9 −7	12 −8	11 −7	8 −7	12 −9	7 −6	11 −8	7 −3
5.	1 +3	1 +4	1 +5	1 +6	1 +7	1 +8	3 +3	3 +9
6.	10 −1	9 −1	6 −5	4 −3	9 −4	9 −5	10 −7	10 −6



Review of Unit 2

1. Look at the picture at the top of the page. This is a family of number facts to go with the picture:

$2 + 4 = 6 \qquad 4 + 2 = 6 \qquad 6 - 4 = 2 \qquad 6 - 2 = 4$

Tell how these four facts go with the picture.

2. Make families of 4 facts each. Use these numbers. First write the facts. Then draw a picture for each family.

a. 2, 3, and 5 (cats)
b. 1, 2, and 3 (pennies)
c. 2, 5, and 7 (pigs)
d. 1, 8, and 9 (boxes)

3. Draw a line down the middle of your paper. On the left side write **You Add.** On the right side write **You Subtract.**

When do you add? Copy under **You Add** everything that goes with adding. When do you subtract? Copy under **You Subtract** everything that goes with subtracting.

a. when you put groups together.
b. when you find how many are left.
c. when you take a group apart.
d. when you see this: +
e. when you see this: –
f. when you find how many more in one group than in another group.
g. when you find how many in all.

How Much Have You Learned?

(Chapter Test 1)

Copy and add:

	a	*b*	*c*	*d*
1.	$2+4=?$	$3+3=?$	$5+1=?$	$4+3=?$
2.	$3+4=?$	$4+6=?$	$1+7=?$	$2+8=?$
3.	$7+2=?$	$3+1=?$	$6+1=?$	$4+4=?$
4.	$1+9=?$	$8+2=?$	$2+6=?$	$6+3=?$
5.	$2+7=?$	$3+6=?$	$1+5=?$	$4+5=?$
6.	$8+3=?$	$4+1=?$	$1+1=?$	$6+6=?$
7.	$7+4=?$	$3+7=?$	$8+4=?$	$2+9=?$
8.	$1+4=?$	$3+8=?$	$4+8=?$	$5+6=?$
9.	$6+4=?$	$5+5=?$	$3+5=?$	$5+7=?$
10.	$7+1=?$	$7+3=?$	$9+1=?$	$1+3=?$
11.	$1+6=?$	$4+7=?$	$6+5=?$	$9+2=?$

Copy and subtract:

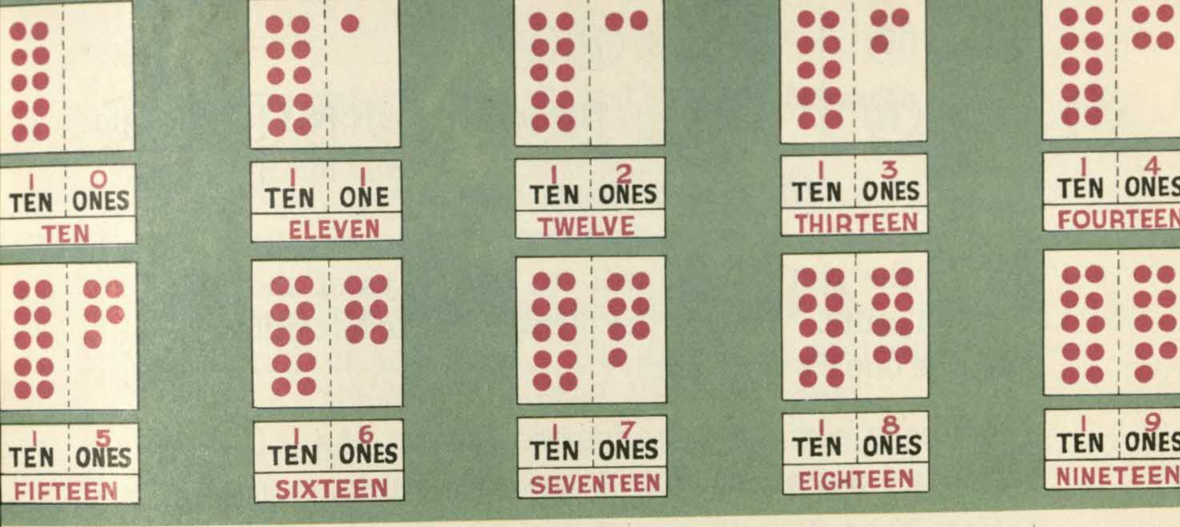
	a	*b*	*c*	*d*
1.	$9-8=?$	$8-5=?$	$6-3=?$	$8-3=?$
2.	$9-3=?$	$4-3=?$	$6-1=?$	$7-6=?$
3.	$2-1=?$	$10-5=?$	$4-1=?$	$7-3=?$
4.	$7-1=?$	$8-7=?$	$5-4=?$	$7-4=?$
5.	$8-1=?$	$10-6=?$	$8-6=?$	$9-7=?$
6.	$10-3=?$	$11-4=?$	$12-3=?$	$11-3=?$
7.	$11-6=?$	$10-9=?$	$10-1=?$	$11-5=?$
8.	$11-7=?$	$10-8=?$	$12-5=?$	$11-8=?$
9.	$12-7=?$	$11-9=?$	$12-8=?$	$12-6=?$
10.	$5-1=?$	$9-5=?$	$8-2=?$	$12-4=?$
11.	$6-5=?$	$9-2=?$	$9-6=?$	$12-9=?$

Do you know all the answers? If you do not, you should learn them now.

CHAPTER

2

Addition and Subtraction Facts



UNIT 1 SOME OLD AND SOME NEW FACTS

A Matching Game for Numbers with Ten in Them

The children in the picture played a game. Three of them picked out the cards that matched the cards they had in their hands.

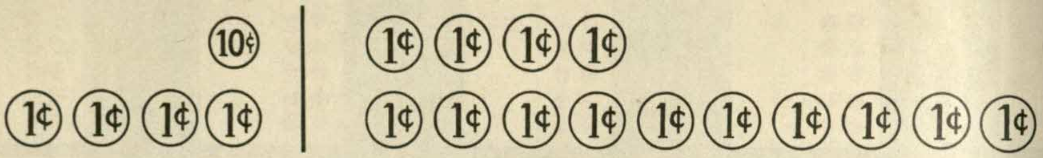
1. Look at the cards the children have. All the cards have the same number of dots on the left side. How many dots are there on the left side?

2. The cards do not have the same number of dots on the right side. Count the dots. See if the children matched the cards right. How many of the boys and girls matched the cards right?

3. Mary is trying to match her card. Where should she put her card?

4. See the cards above. They tell you about all the numbers with 1 ten in them. Practice reading these numbers. Tell what each number means.

★**5.** Make cards like those in the picture. Play the matching game.



What Is a Dime Worth?

(Meaning of money numbers)

1. In the picture you will see two ways of showing fourteen cents. How is the picture on the left different from the one on the right?

▶ This is how we write fourteen cents: **14¢**. The 4 means 4 **pennies**. The 1 means **1 dime**.

2. Copy the examples below. Write numbers in place of the question marks. The first example is done for you.

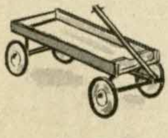
a. 11¢ = 1 dime and 1 penny = 11 cents
b. 12¢ = 1 dime and ? pennies = ? cents
c. 14¢ = 1 dime and ? pennies = ? cents
d. 15¢ = 1 dime and ? pennies = ? cents
e. 17¢ = 1 dime and ? pennies = ? cents

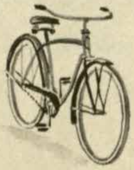
Zero

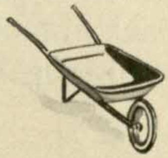
How many wheels do you see in the first picture? In the second picture? In the third? In the fourth? In the last picture?

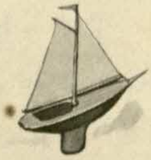
The boat has **no** wheels, or **not any**, or **none**. It has **0** wheels.

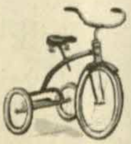
▶ The name of 0 is **zero**. Zero means **none** or **not any**. You use 0 to write the number 10.











Numbers from Ten Through Nineteen

1. Read these numbers:

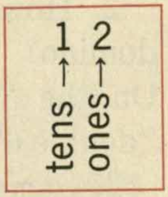
10 11 12 13 14 15 16 17 18 19

2. Say the numbers from 13 through 19. Listen to the end of each one. Do you hear something like "ten"? What do you think "teen" means?

The **one-place** numbers are: 1, 2, 3, 4, 5, 6, 7, 8, and 9.

When a number has 2 figures (like 12 or 19 or 15), we say it is a **two-place** number.

Look at the number 12 in the box. The 2 tells how many ones there are. The 1 tells how many tens there are.



3. What figure is in the tens' place in all these numbers?

11 15 19 16 12 14 13 17 18

What figure is in the ones' place in each number?

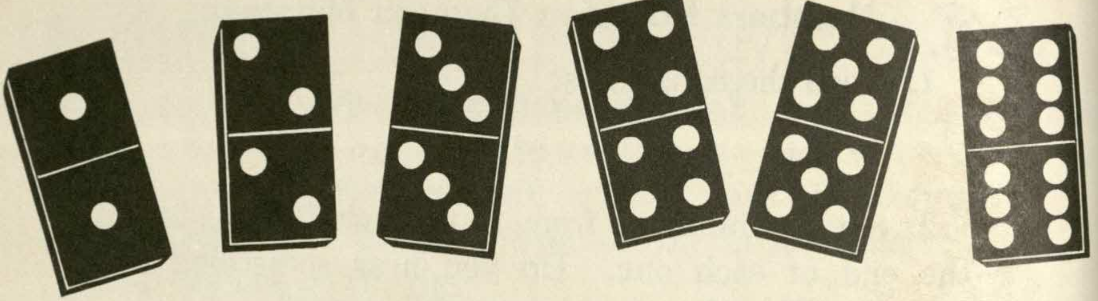
4. What do you see in the ones' place in the number 10? What would 10 look like if we left off the zero? Do we need the zero? Why?

> When a number ends in zero, the zero means that there are no ones.

5. Write:

a. the numbers from 10 through 19.

b. the word names of the same numbers.



Domino Doubles

1. The picture shows **domino doubles.** What are **dominoes**? What does **double** mean?

2. How many dots are there on the "double 1" domino? On the "double 2"? On the "double 3"? On the "double 4"? On the "double 5"? On the "double 6"?

3. Some dominoes have bigger numbers than the double 6. Draw pictures of these doubles:

a. Double 7 *b.* Double 8 *c.* Double 9

4. We call these addition facts the doubles. Why?

$$\begin{array}{ccccccccc} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ \underline{1} & \underline{2} & \underline{3} & \underline{4} & \underline{5} & \underline{6} & \underline{7} & \underline{8} & \underline{9} \\ 2 & 4 & 6 & 8 & 10 & 12 & 14 & 16 & 18 \end{array}$$

5. Cover the sums. Say the sums as quickly as you can.

6. Use books or pencils or other things to show 1 + 1, then 2 + 2, then 3 + 3, and so on up to 9 + 9. Show that you always need 2 more things for the next larger double.

★**7.** Take any two doubles that are next to each other, like 4 + 4 and 5 + 5. How much difference is there in their sums?

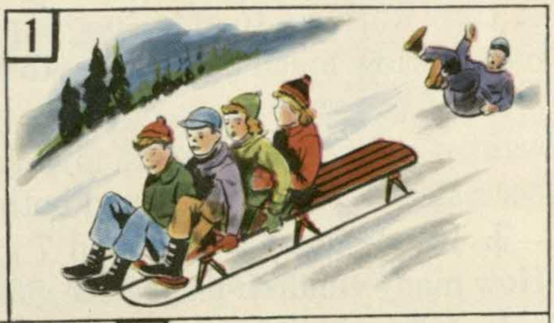
Tell the Story

Tell stories for the pictures on this page. Then write the stories as number facts. The first one is done for you.

Five children got on one sled. One child fell off. Four children were left on the sled.

$5 - 1 = 4$

1



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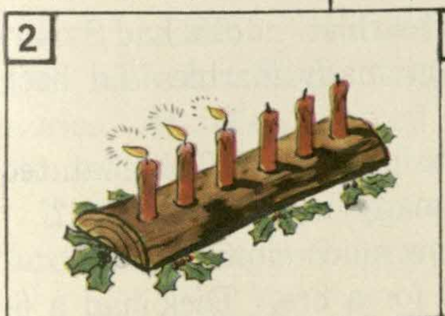

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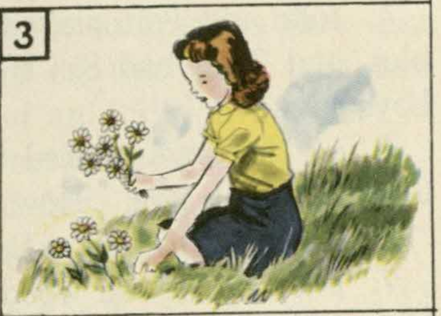

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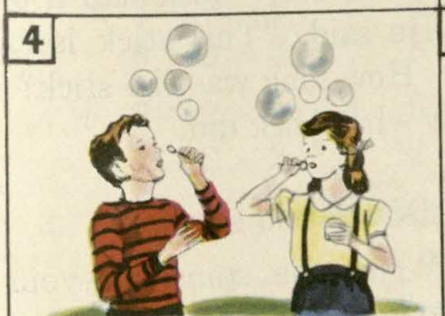

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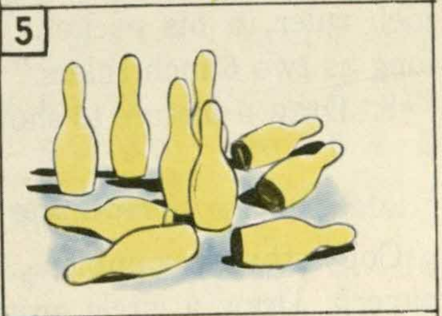

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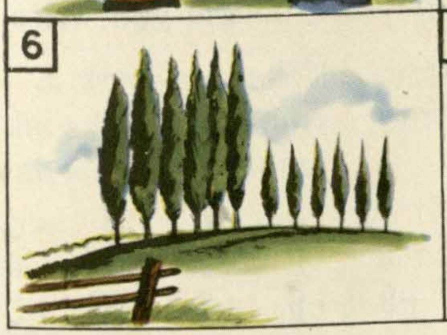

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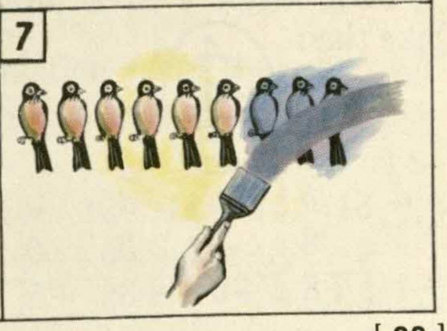


Picnic at the Park

1. Ruth's room at school had a picnic at the park. It cost Ruth 6¢ to ride to the park and 6¢ to come back. How much did she pay to ride both ways?

2. At the park sticks of candy were 5¢ each. Mary wanted to buy a stick of candy and she wanted one for her sister. How much would both cost?

3. In one game 7 boys and 7 girls played together. How many children played the game?

4. John and Tom played marbles. John had 8 marbles, and Tom had 8. How many marbles did both boys have?

5. All the boys wanted to play ball. They wanted 9 boys on each side. How many boys were needed?

6. Sue had 2 nickels. How much money is that?

7. The boys found wood for a fire. Dick had a 6-inch ruler in his pocket. He said, "This stick is as long as two 6-inch rulers." How long was the stick?

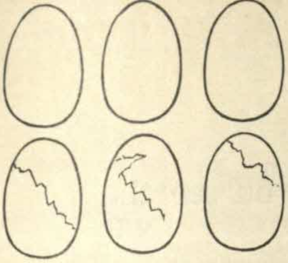
★8. Draw a picture to show what Dick did.

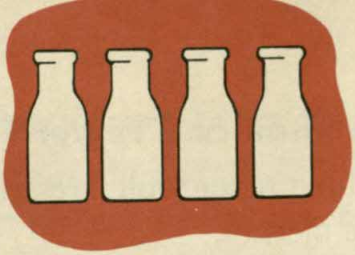
Find the Doubles

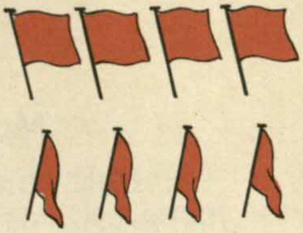
Copy these examples. Write the sums on your paper. Draw a circle around each double you write, like this:

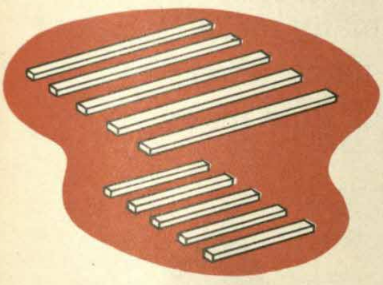
$$\boxed{\begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array}}$$

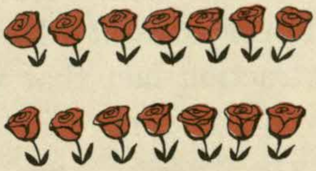
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
4	8	6	3	6	2	9	7	7	5
+4	+8	+6	+3	+5	+9	+9	+7	+5	+5

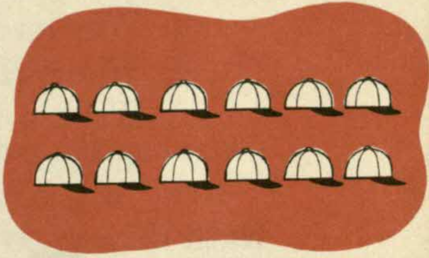












The Doubles Help in Subtraction

Every addition double has a subtraction fact that goes with it. Each picture on this page tells two stories. It tells the story of an addition double. It also tells the story of a subtraction fact.

1. Which of these pairs of facts goes with each picture? Tell how both facts go with the picture.

a. $3 + 3 = 6$
$6 - 3 = 3$

b. $2 + 2 = 4$
$4 - 2 = 2$

c. $4 + 4 = 8$
$8 - 4 = 4$

d. $6 + 6 = 12$
$12 - 6 = 6$

e. $7 + 7 = 14$
$14 - 7 = 7$

f. $5 + 5 = 10$
$10 - 5 = 5$

2. Draw one picture that shows each pair of facts.

a. $9 + 9 = 18$
$18 - 9 = 9$

b. $1 + 1 = 2$
$2 - 1 = 1$

c. $8 + 8 = 16$
$16 - 8 = 8$

3. Here are all the subtraction facts that go with the addition doubles. Cover the answers. See if you can say the answers.

$$\begin{array}{rrrrrrrrr} 2 & 4 & 6 & 8 & 10 & 12 & 14 & 16 & 18 \\ \underline{-1} & \underline{-2} & \underline{-3} & \underline{-4} & \underline{-5} & \underline{-6} & \underline{-7} & \underline{-8} & \underline{-9} \\ 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

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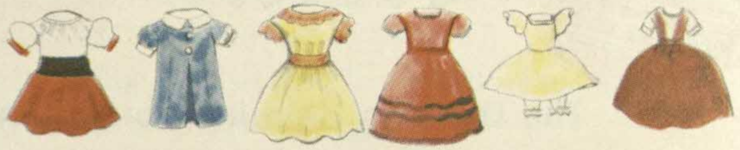
More Than and Fewer Than

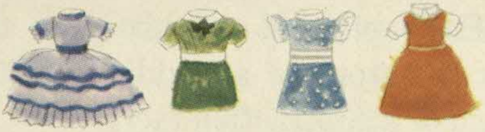
1. Ruth and Jane made doll dresses. You see the doll dresses in the picture.

a. Who made **more** dresses? How many more?
b. Who made **fewer** dresses? How many fewer?
c. Write a subtraction fact that tells how many more or how many fewer.

Ruth's doll dresses



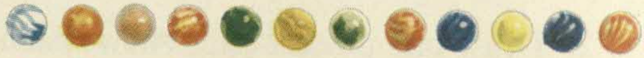
Jane's doll dresses



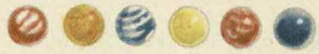
2. Dick and Tom like to play marbles. The picture shows their marbles.

a. Which boy has more marbles?
b. Which boy has fewer marbles?
c. Write the subtraction fact that tells how many more or how many fewer.

Dick's marbles



Tom's marbles



▶ To tell how many more or how many fewer, we subtract. The answer is called the **difference.**

3. Write subtraction facts that will tell the difference. Write a subtraction fact for each story below:

a. Carl has 6 boys and 5 girls at his party.
b. There were 7 people in a room and only 5 chairs.
c. John has 12 pennies and Ted has 4 pennies.

How Many Were Sold?

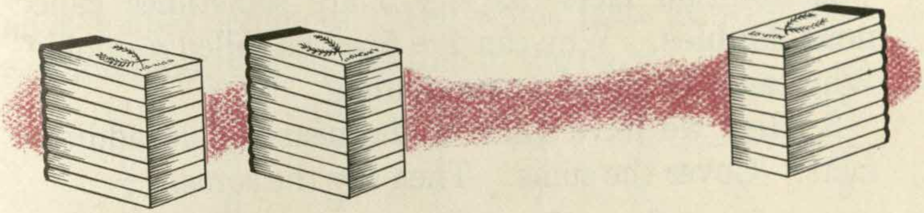
1. The first picture shows tablets in a store one morning. The other picture shows the tablets that were left that night.

a. How many tablets did the store have in the morning?

b. How many did the store have that night?

c. How many tablets had been sold that day?

d. How do you know how many were sold?



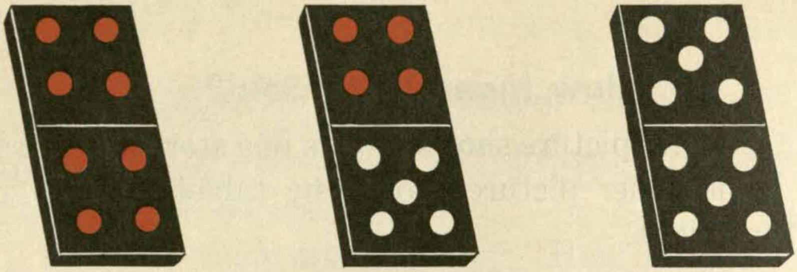
2. The list below tells about other things in the store. Copy the list. For each thing, write in the **number sold**.

	Morning	**Night**	**Number Sold**
Tablets	18	9	?
Rulers	12	5	?
5¢ pencils	12	6	?
1¢ pencils	11	5	?
10¢ pencils	16	8	?
Drawing paper	10	3	?
Notebooks	14	7	?
Pencil boxes	11	7	?

3. What did you do to find out how many were sold?

▶ To find how many are gone, we **subtract**.

★**4.** How many pencils of all three kinds were sold? How many of all three kinds were left to be sold?



Between Two Doubles

1. How is the middle domino like the first domino? How is it like the last domino? How is it different from both of the others?

2. Addition facts like $4 + 5$ are sometimes called **near-doubles.** Why can $4 + 5$ *not* be called a double? Why can it be called a near-double?

3. Here we have some of the near-double addition facts. Cover the sums. Then say the sums.

$$\begin{array}{rrrrrrrr} 5 & 6 & 7 & 8 & 9 & 8 & 7 & 6 \\ +6 & +7 & +8 & +9 & +8 & +7 & +6 & +5 \\ \hline 11 & 13 & 15 & 17 & 17 & 15 & 13 & 11 \end{array}$$

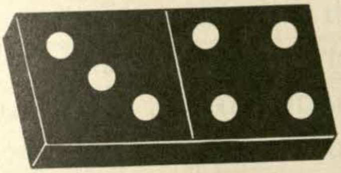
Every near-double comes between two doubles.

★**4.** Copy the examples below and write the sum for each near-double. Write it between the two doubles that come just before and after it. The first one is done for you.

	Smaller Double	*Near-Double*	*Larger Double*
a.	$3 + 3 = 6$	$3 + 4 = 7$	$4 + 4 = 8$
b.		$5 + 6 = ?$	
c.		$7 + 8 = ?$	
d.		$5 + 4 = ?$	
e.		$8 + 9 = ?$	
f.		$6 + 7 = ?$	
g.		$6 + 5 = ?$	

Near-double Families

1. A near-double domino can show a whole family of addition and subtraction facts. Tell how this domino shows all four facts in the 3 + 4 = 7 family.



3 + 4 = 7 4 + 3 = 7

7 − 4 = 3 7 − 3 = 4

2. Here are some subtraction facts that go with near-double dominoes. Tell which facts go with each domino picture at the bottom of the page.

11	11	13	13	15	15	17	17
−6	−5	−7	−6	−8	−7	−9	−8
5	6	6	7	7	8	8	9

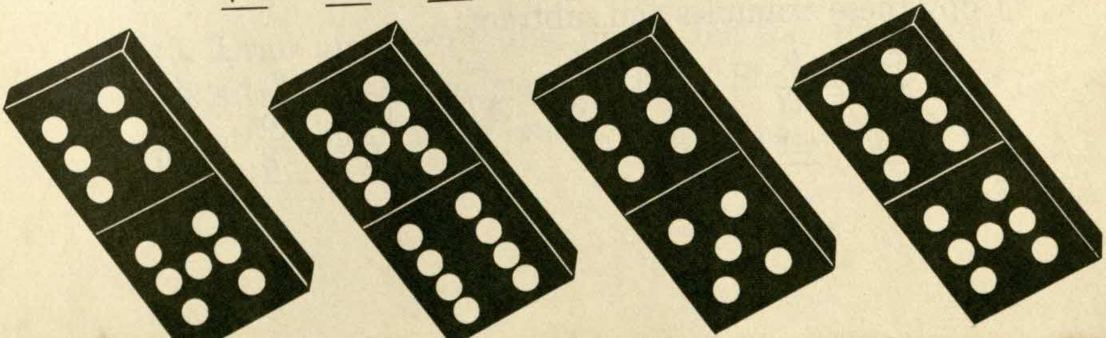
3. Write a family of number facts for each domino picture. There are 4 pictures, so there will be 4 families of facts. Here are 2 addition facts and 2 subtraction facts for the first domino.

7 + 8 = 15 8 + 7 = 15 15 − 7 = 8 15 − 8 = 7

Watch the Signs

Copy these examples and write the answers.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	4 +5	6 +4	8 +8	9 +8	15 −8	18 −9	13 −7	9 −5
2.	7 +8	5 +7	6 +7	7 +4	12 −3	11 −4	17 −9	12 −5



Fun on a Rainy Day

(Addition and Subtraction)

1. One rainy day Mary and Jane cut out paper dolls. Mary cut out 6 and Jane cut out 5.

a. How many dolls did both girls cut out?

b. How many more did Mary cut out than Jane?

2. Sue likes to read when she cannot go out. One day she read a story 4 pages long and a story 8 pages long.

a. How many pages did Sue read all together?

b. How much longer was the second story than the first?

3. Sally helped her mother. She picked up 8 books. She put them with 9 books in the bookcase. How many books were in the bookcase then?

4. Tom and Fred play with their trains on rainy days. Tom has 11 cars for his train. Fred has 6 cars. How many fewer does Fred have?

5. Jane washed her doll dresses one rainy day. She washed 6 dresses for her large doll and 7 dresses for her small doll. How many dresses did Jane wash?

6. Carl and Dick put their marbles together to play a game. Together they had 15 marbles. When Dick was ready to go home, he did not know how many marbles were his. Carl said that he knew he had 7. How many would that leave for Dick?

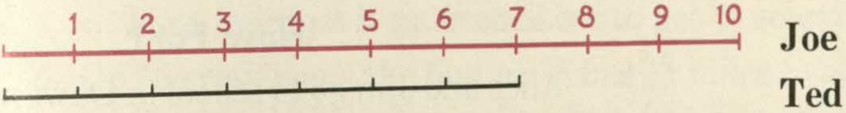
Time for Practice

Copy these examples and subtract:

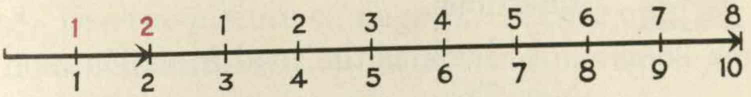
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
11	17	11	13	17	16	15	18
$\underline{-6}$	$\underline{-8}$	$\underline{-3}$	$\underline{-6}$	$\underline{-9}$	$\underline{-8}$	$\underline{-8}$	$\underline{-9}$

Number Lines

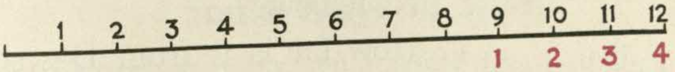
1. The red line shows how many blocks Joe walks to school. The black line shows how far Ted walks to school. Who walks farther? How many blocks farther?



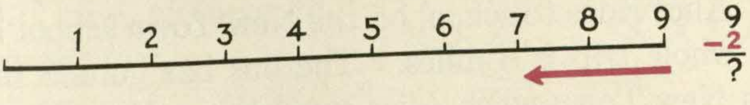
2. When Mary goes to school, she rides 2 miles with her mother. Then she rides 8 miles on the school bus. How far does she ride to get to school?



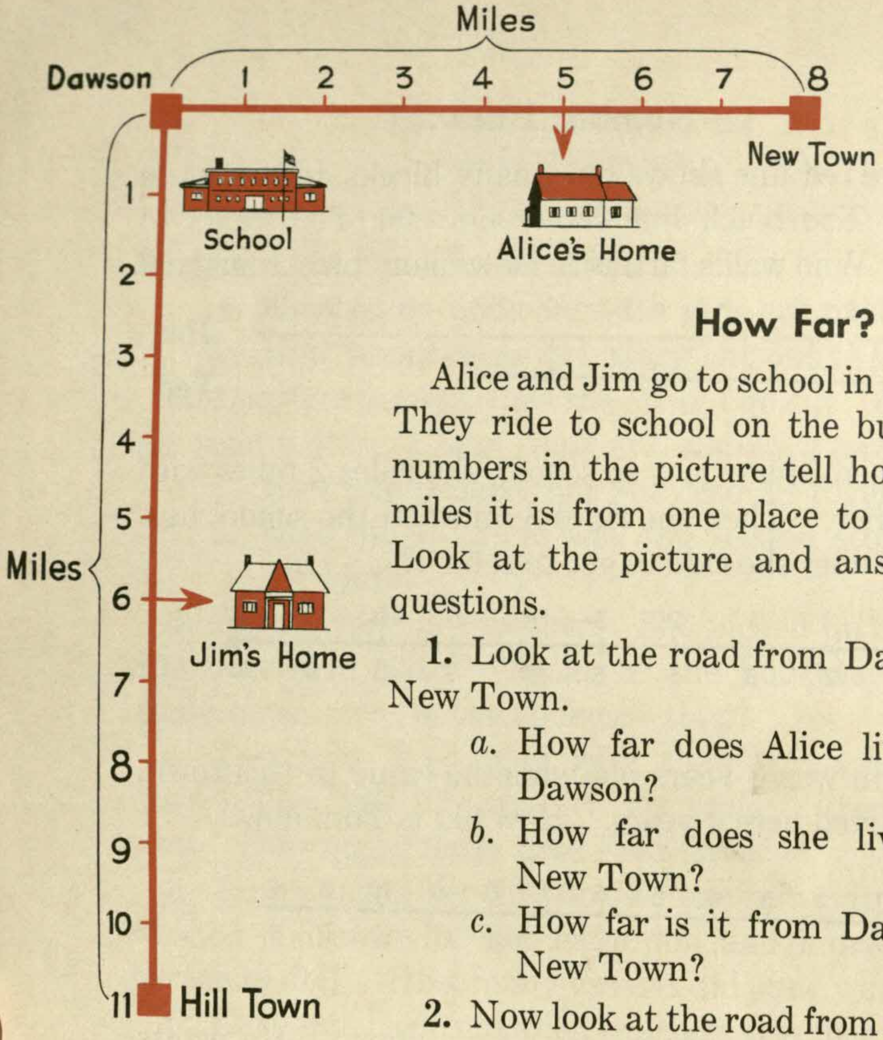
3. Tom was 8 years old when he came to this town. He has lived here 4 years. How old is Tom now?



4. Dick has 9 days before school starts. He wants to see his grandmother. It takes 2 days to go to his grandmother's house and come home again. How many days can he stay with his grandmother?



★**5.** Draw another number line to tell the story about Dick's trip to see his grandmother. Show the 2 days at another place on the line.



How Far?

Alice and Jim go to school in Dawson. They ride to school on the bus. The numbers in the picture tell how many miles it is from one place to another. Look at the picture and answer the questions.

1. Look at the road from Dawson to New Town.

a. How far does Alice live from Dawson?

b. How far does she live from New Town?

c. How far is it from Dawson to New Town?

2. Now look at the road from Dawson to Hill Town.

a. How far is it from Jim's home to Dawson?

b. How far is it from Jim's home to Hill Town?

c. How far is it from Dawson to Hill Town?

3. Alice rides to school on the New Town school bus. The whole trip is 8 miles. The bus has gone 3 miles from New Town when Alice gets on it. How far does the bus have to go from there to get to Dawson?

4. From school to New Town the bus has 8 miles to go. Alice gets off when the bus has gone 5 miles. How far does the bus still have to go to get to New Town?

5. Jim rides on the Hill Town school bus.
   a. How far does that bus go from Hill Town to Dawson?
   b. How far has the bus gone when it picks up Jim?
   c. How far must it go from there to get to school?

6. On the way home the bus again has 11 miles to go.
   a. How far has the bus gone when Jim gets off?
   b. How far does it still have to go?

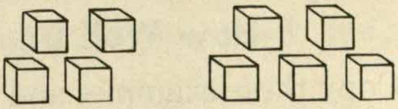
7. Now read Problems **1** to **6** again. Write a number fact to answer the last question in each problem.

★**8.** Use the picture on page 42. Write out:
   a. 5 other addition facts with sums of 8.
   b. 7 other addition facts with sums of 11.
   c. 5 other subtraction facts that start with 8.
   d. 6 other subtraction facts that start with 11.

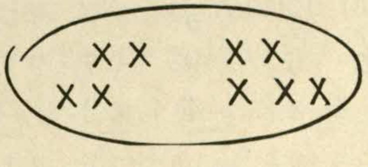
Some Ways to Study

Some number facts are harder than others. Study the harder facts in different ways. Use the way that helps you most. You may want to:

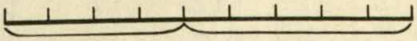
1. Count blocks or other things to show the fact.



2. Draw pictures to show the fact.

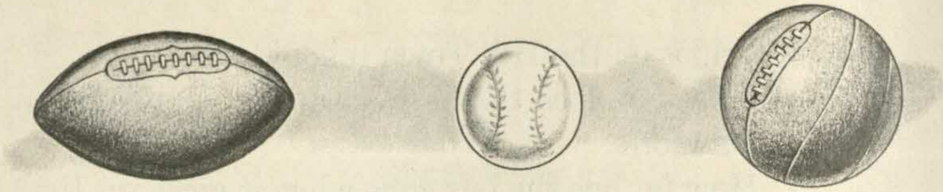


3. Draw a number line to show the fact.



4. Cover the answer and see if you can say it without looking.

$$\boxed{\begin{array}{r}4\\+5\\\hline 9\end{array}}$$



How Many to Play?

1. What game is played with the first ball? Eleven boys play on each side in that game. Five boys are ready to play for their side. How many more boys do they need on their side?

2. All 11 boys on the other side are ready. They all have football suits. Only 7 of their suits are new. How many are old?

3. Some girls are playing with the third ball. They have 6 girls on each side. How many girls are playing?

4. What game is played with the second ball? Nine boys play on each side. If 5 boys on one side have had a turn at bat, how many have not had a turn?

5. Three boys and 8 girls are playing a game.

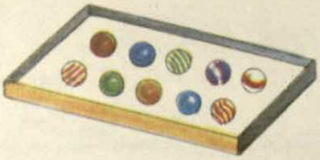
a. How many children are playing?

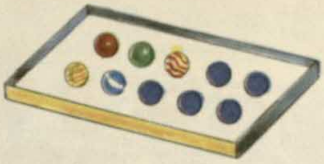
b. How many more girls than boys are playing?

How Well Do You Subtract?

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	$\begin{array}{r}6\\ -2\\ \hline\end{array}$	$\begin{array}{r}9\\ -4\\ \hline\end{array}$	$\begin{array}{r}7\\ -2\\ \hline\end{array}$	$\begin{array}{r}9\\ -6\\ \hline\end{array}$	$\begin{array}{r}7\\ -6\\ \hline\end{array}$	$\begin{array}{r}9\\ -7\\ \hline\end{array}$	$\begin{array}{r}10\\ -4\\ \hline\end{array}$	$\begin{array}{r}10\\ -9\\ \hline\end{array}$
2.	$\begin{array}{r}11\\ -8\\ \hline\end{array}$	$\begin{array}{r}12\\ -7\\ \hline\end{array}$	$\begin{array}{r}17\\ -8\\ \hline\end{array}$	$\begin{array}{r}11\\ -2\\ \hline\end{array}$	$\begin{array}{r}13\\ -6\\ \hline\end{array}$	$\begin{array}{r}14\\ -7\\ \hline\end{array}$	$\begin{array}{r}18\\ -9\\ \hline\end{array}$	$\begin{array}{r}10\\ -6\\ \hline\end{array}$
3.	$\begin{array}{r}16\\ -8\\ \hline\end{array}$	$\begin{array}{r}15\\ -7\\ \hline\end{array}$	$\begin{array}{r}17\\ -9\\ \hline\end{array}$	$\begin{array}{r}15\\ -8\\ \hline\end{array}$	$\begin{array}{r}13\\ -7\\ \hline\end{array}$	$\begin{array}{r}11\\ -9\\ \hline\end{array}$	$\begin{array}{r}12\\ -8\\ \hline\end{array}$	$\begin{array}{r}12\\ -9\\ \hline\end{array}$





Review of Unit 1

Say or write the answers:

1. What number comes:

a. next after 14? *c.* just before 19?
b. next after 17? *d.* just before 17?

2. At the top of the page you see some marbles. How many marbles are in both boxes?

a. Look at the number 15 at the right. What does the 5 tell? 5 what?

b. In the number 15 what does the 1 tell? 1 what?

15

c. Which box of marbles shows the 1 ten in 15?

d. Which box of marbles shows the 5 ones in 15?

3. John has 17¢. He has 7 pennies and one other coin. What is the other coin?

Write:

4. Write all the addition doubles. Start with $1 + 1$ and go through $9 + 9$. Be sure to give the right sums.

5. Write all the subtraction facts that go with the addition doubles. Start with $2 - 1 = 1$ and go through $18 - 9 = 9$.

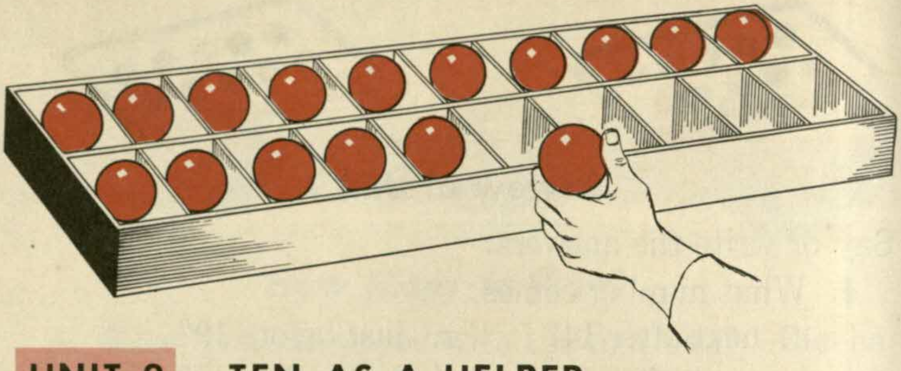
6. Write a family of addition and subtraction facts for each example below. The first one is done like this:

$4 + 5 = 9$ $5 + 4 = 9$ $9 - 5 = 4$ $9 - 4 = 5$

a. $4 + 5 = ?$ *c.* $8 + 9 = ?$ *e.* $5 + 6 = ?$
b. $6 + 7 = ?$ *d.* $8 + 7 = ?$ *f.* $4 + 3 = ?$

7. Write each example with its answer. Then draw a number line for each fact.

a. $6 + 1$ *b.* $9 - 8$ *c.* $8 + 2$



UNIT 2 TEN AS A HELPER

It's Easy to Add to Ten

1. Dick is adding. How many balls are in the top row? How many are in the second row? What is the sum of Dick's balls? How do you know?

2. Dick says it is easy to add another number to 10. Do you think it is easy? Why?

3. What is the sum of 10 and 3?

a. How is the sum like 10?

b. How is the sum like 3?

c. What number is in the tens' place in the sum?

d. What number is in the ones' place in the sum?

$$\boxed{\begin{array}{r} 10 \\ +3 \\ \hline ?? \end{array}}$$

4. Is this right?

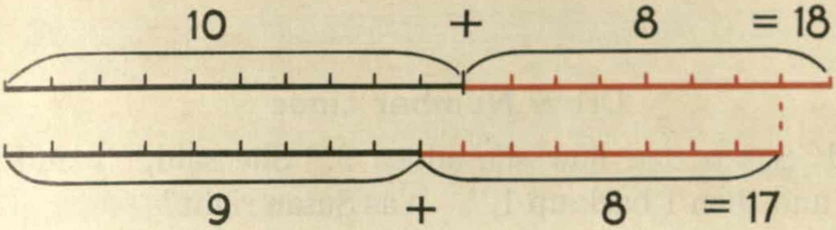
When we add 10 and a smaller number:

a. The sum always has a 1 in tens' place.

b. The sum always has the other number in ones' place.

Write or Tell

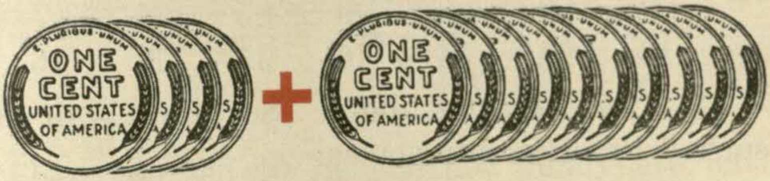
	a	*b*	*c*	*d*	*e*
1. Add 2 to each number.	9	6	8	5	7
2. Add 4 to each number.	3	1	5	4	2
3. Subtract 3 from each number.	8	5	7	6	4

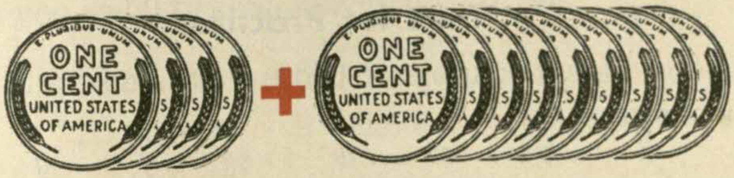


Adding Ten and Adding Nine

It is easy to add a number to 10. We are going to see that it is almost as easy to add a number to 9. The number lines at the top of the page will help you.

1. Look at the two number lines.
   - *a.* How are they alike?
   - *b.* How are they different?
   - *c.* Which sum is bigger? How much bigger?
   - *d.* Which sum is smaller? How much smaller?





2. Look at the pennies in Lines **A** and **B**.
   - *a.* How are the two lines of pennies alike?
   - *b.* How are the two lines different?
   - *c.* Which has more pennies? How many more?
   - *d.* Which has fewer pennies? How many fewer?

Nine is one less than ten. When we add 9 and another number, the sum is 1 less than when we add 10 to the same number.

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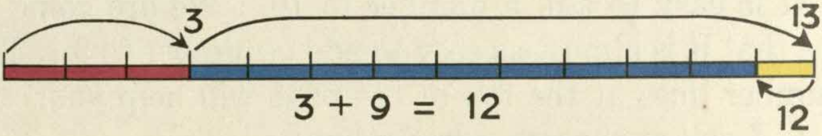
Draw Number Lines

1. Susan told how she added 9. She said, "I add 10 and then I back up 1." Was Susan right?

This number line shows what Susan did when she added 3 and 9.



2. Draw a number line for each addition fact below. Show on the line that the addition fact is right.

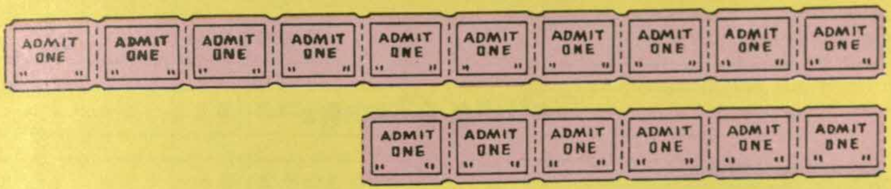
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
4	6	5	7	9	9	9	9
+9	+9	+9	+9	+5	+4	+7	+6
13	15	14	16	14	13	16	15

3. Cover the sums above. See if you can say the sums. Practice until you can.

Time for Practice

Copy these examples. Close your book and write the answers.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	1	2	5	3	7	9	3	9
	+9	+7	+9	+6	+9	+3	+1	+4
2.	4	9	8	9	8	9	4	3
	+6	+5	+3	+6	+4	+7	+2	+7
3.	15	3	10	3	10	7	14	13
	−7	−1	−1	−2	−2	−1	−7	−7
4.	13	17	5	11	10	5	11	9
	−6	−8	−2	−8	−8	−1	−9	−1



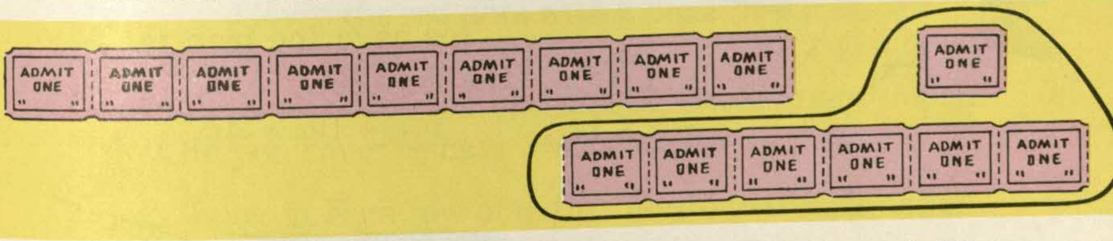
Subtracting Nine

1. How many tickets do you see at the top of this page? Play you are going to sell 10 tickets.

a. Which 10 tickets would you sell? Why?

b. How many would you have left?

2. Play you have the same 16 tickets. You are going to sell 9 tickets. How would you tear off 9 tickets? This is one way:



3. When you sell 10 tickets, how many are left? When you sell 9 tickets, how many are left?

16 tickets − 10 tickets = 6 tickets
16 tickets − 9 tickets = 7 tickets

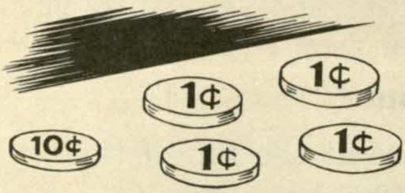
4. Which answer is larger? How much larger? Why is the answer larger when you subtract 9?

When we subtract 9, the answer is 1 more than when we subtract 10.

5. Study these subtraction facts. Cover the remainders and see if you can say them.

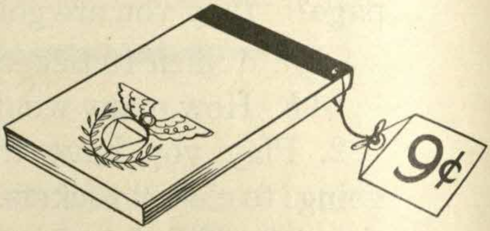
13	17	16	18	14	15	11	12
−9	−9	−9	−9	−9	−9	−9	−9
4	8	7	9	5	6	2	3

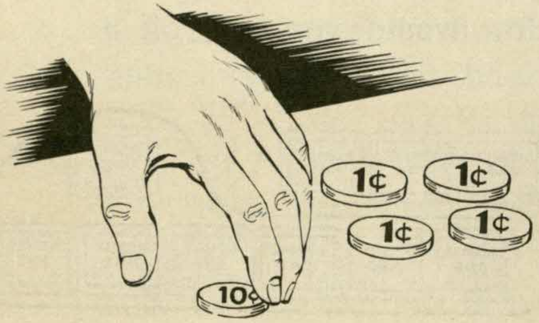
Getting Change



Joe had 14¢.

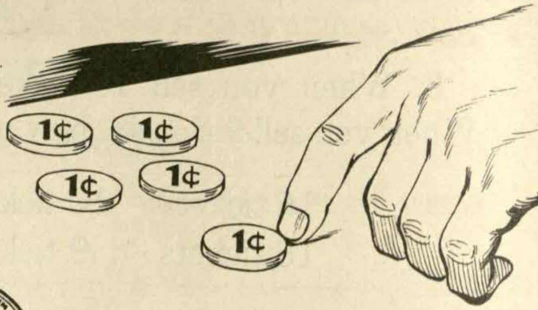
Joe bought a notebook. It cost 9¢.





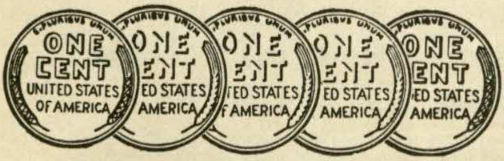
Joe gave the man in the store 10¢.

14¢ − 10¢ = 4¢



The man gave Joe 1¢ in change.

4¢ + 1¢ = 5¢

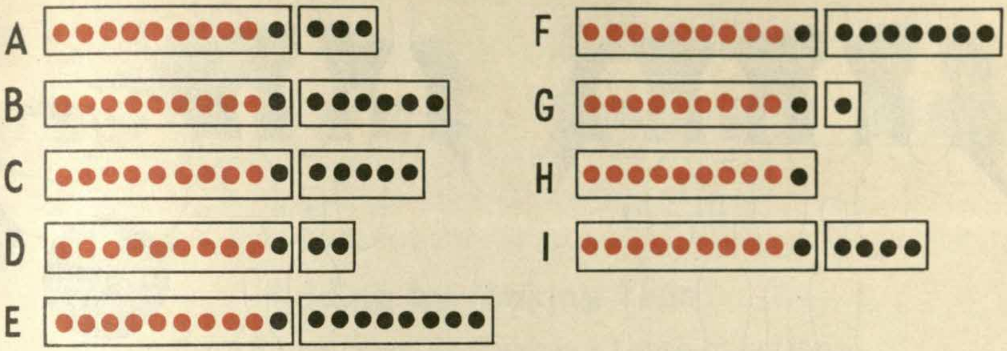


Now Joe has 5¢.

Subtracting 9 is like subtracting 10 and then adding 1.

Subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	13	15	14	12	16	18	17	11
	−9	−9	−9	−9	−9	−9	−9	−9



Working with Nine

1. Look at the dot pictures. Look at **A.**

a. How many dots do you see in all?

b. How many are red?

c. Cover the red dots with a piece of paper. How many dots still show? 13 − 9 = ?

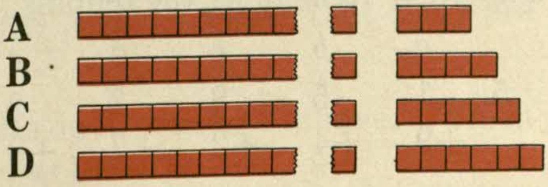
d. Now cover the black dots. How many black dots do you cover to have 9 dots left? 13 − ? = 9

2. Look at each row of dots. Write two subtraction facts that go with each row. Do it like this:

Row A. 13 − 9 = 4   13 − 4 = 9

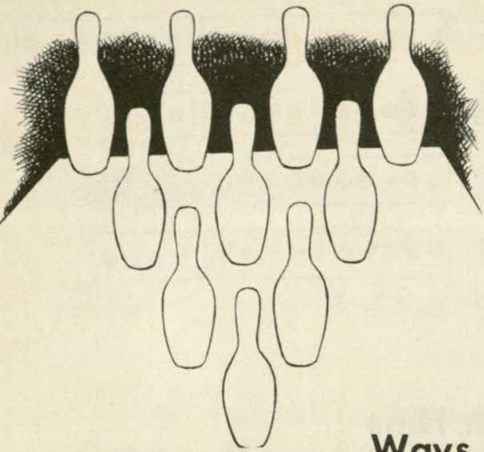
3. The subtraction facts below show how many you can take away from 13, or 14, or 15, or 16 and have 9 left. Tell which picture goes with each fact.

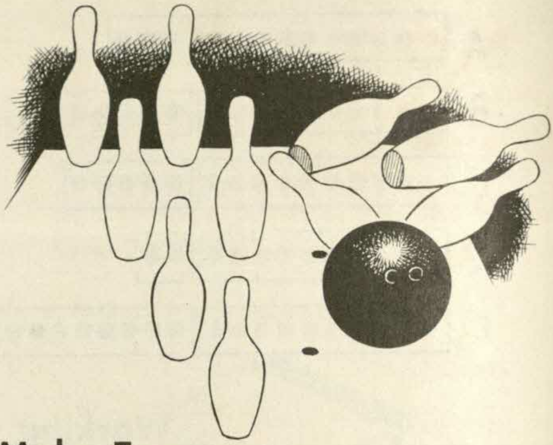
16 − 7 = 9
14 − 5 = 9
13 − 4 = 9
15 − 6 = 9



4. Copy the examples below. Close your book. Write the answers.

a. 15 − 6
b. 14 − 9
c. 16 − 7
d. 12 − 7
e. 13 − 4
f. 16 − 9
g. 14 − 5
h. 12 − 8
i. 15 − 9
j. 13 − 9
k. 12 − 4
l. 17 − 8
m. 12 − 3
n. 10 − 3
o. 12 − 9



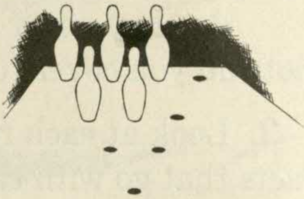


Ways to Make Ten

1. What do you see in the pictures? Why are they called "tenpins"? How many are there in each picture?

2. What has happened in the second picture? If 6 pins are still standing, how many are down?

3. This picture shows only pins that are standing. How many are gone?

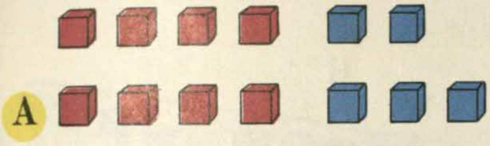


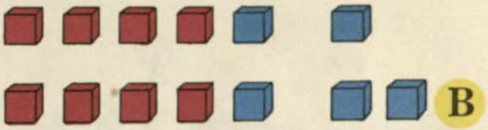
4. Play that you are playing tenpins. Tell how many pins are down if these numbers are standing:

a. 3 *b.* 4 *c.* 7 *d.* 2 *e.* 9 *f.* 1 *g.* 8

Copy these examples. Close your book. Write the answers. Remember the tenpins.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
5.	1 +9	5 +4	8 +2	3 +7	2 +8	9 +2	5 +7	4 +6
6.	10 −2	10 −5	10 −3	10 −4	10 −6	10 −8	10 −9	10 −7
7.	3 +2	8 +1	2 +5	9 +1	13 −9	15 −9	12 −8	12 −7





8 and 5 **10 and 3**

Adding by Making Tens

1. Study the pictures and answer these questions:

a. How many blocks are in picture **A**?

b. How many blocks are in picture **B**?

c. How many groups are in picture **A**?

d. How many groups are in picture **B**?

2. We have 13 blocks in both pictures. In one picture it is easier to see that there are 13. Which picture is that? Why is it easier to see 13 there?

3. Here are some new addition and subtraction facts. Which ones go with the pictures of the blocks?

$$\begin{array}{r}8\\+5\\\hline 13\end{array}\qquad\begin{array}{r}6\\+8\\\hline 14\end{array}\qquad\begin{array}{r}5\\+8\\\hline 13\end{array}\qquad\begin{array}{r}8\\+6\\\hline 14\end{array}\qquad\begin{array}{r}13\\-8\\\hline 5\end{array}\qquad\begin{array}{r}14\\-8\\\hline 6\end{array}\qquad\begin{array}{r}14\\-6\\\hline 8\end{array}\qquad\begin{array}{r}13\\-5\\\hline 8\end{array}$$

4. Study the pictures at the bottom of the page.

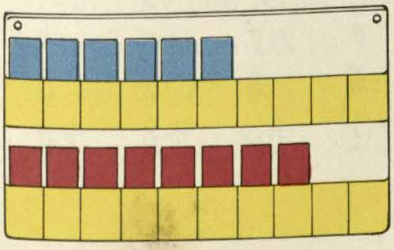
a. How are the two pictures alike?

b. How are the two pictures different?

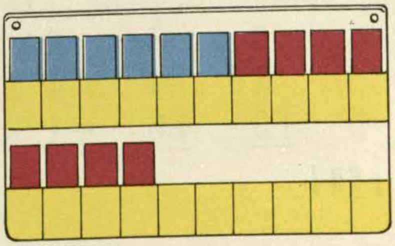
c. In which one is it easier to see that there are 14 cards?

5. Look at the facts in Question 3 above. Which ones go with the pictures below?

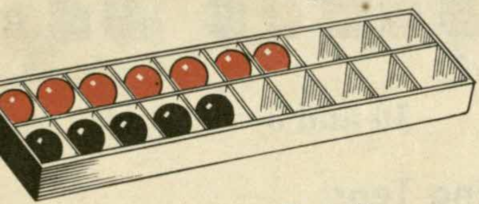
6 and 8



10 and 4

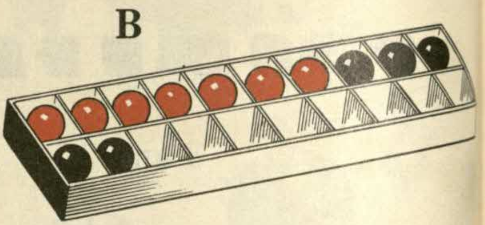


A



7 + 5

B



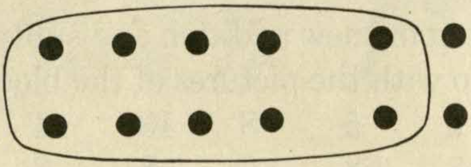
10 + 2

Make a Group of Ten

1. Look at the pictures. The two pictures tell a story. You tell the story. What happened?

7 balls and 5 balls = 10 balls and 2 balls = 12 balls

2. Here is another way to "make a ten." This dot picture means: 8 + 4 = 10 + 2 = 12.

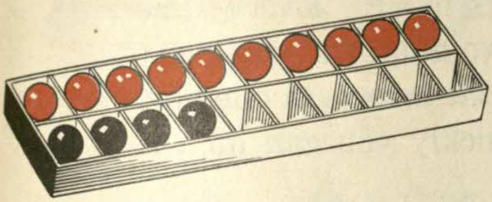


3. Copy these examples. Write numbers where the question marks are. Make dot pictures like the one above if they will help you.

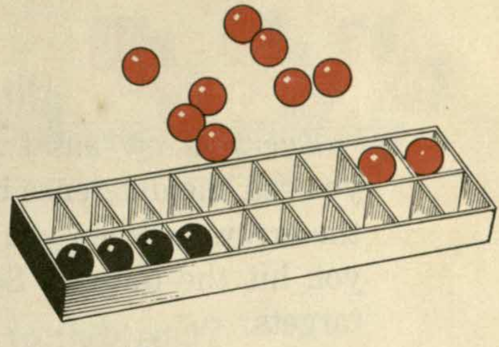
a. 8 + 6 = 10 + ? = 14
b. 7 + 4 = 10 + ? = 11
c. 8 + 5 = 10 + ? = ?
d. 8 + 3 = 10 + ? = ?
e. 9 + 7 = 10 + ? = ?
f. 8 + 8 = 10 + ? = ?
g. 9 + 9 = 10 + ? = ?
h. 7 + 6 = 10 + ? = ?
i. 8 + 7 = 10 + ? = ?
j. 9 + 8 = 10 + ? = ?

4. Copy these examples. Close your book. Write the sums.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1	4	4	4	5	5	2	6
+3	+8	+1	+7	+1	+8	+3	+9



A



B

Subtract from Ten First

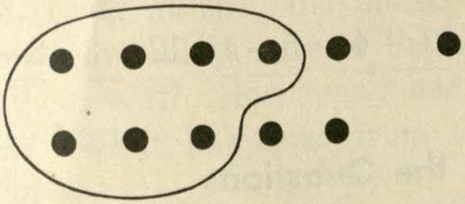
(Oral work)

1. How many balls are in Box **A**? How many are in each row in Box **A**?

2. Study the two pictures. They tell three number fact stories. How do the pictures tell these stories?

a. $10 - 8 = 2$ *b.* $2 + 4 = 6$ *c.* $14 - 8 = 6$

3. Here is another way to "subtract from 10 first." This dot picture shows: $11 - 7 = 3 + 1 = 4$. Tell about it.



Where is the 11?
Where is the 7?
Where is the 3?
Where is the 1?
Where is the 4?

4. Say the remainders quickly. Remember that 11 is 1 more than 10.

a. $\begin{array}{r}10\\ \underline{-4}\end{array}$ $\begin{array}{r}11\\ \underline{-4}\end{array}$ *b.* $\begin{array}{r}10\\ \underline{-3}\end{array}$ $\begin{array}{r}11\\ \underline{-3}\end{array}$ *c.* $\begin{array}{r}10\\ \underline{-5}\end{array}$ $\begin{array}{r}11\\ \underline{-5}\end{array}$

★**5.** Say the remainders quickly. Remember that 12 is 2 more than 10.

a. $\begin{array}{r}10\\ \underline{-7}\end{array}$ $\begin{array}{r}12\\ \underline{-7}\end{array}$ *b.* $\begin{array}{r}10\\ \underline{-8}\end{array}$ $\begin{array}{r}12\\ \underline{-8}\end{array}$ *c.* $\begin{array}{r}10\\ \underline{-9}\end{array}$ $\begin{array}{r}12\\ \underline{-9}\end{array}$

Hit the Target

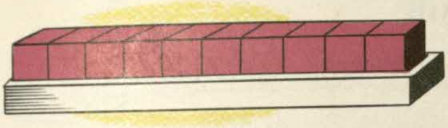
Every arrow has two numbers on it. Every time you tell the difference between two numbers, you shoot the arrow. When you shoot all the arrows in one line, you hit the target. See how quickly you can hit the targets.

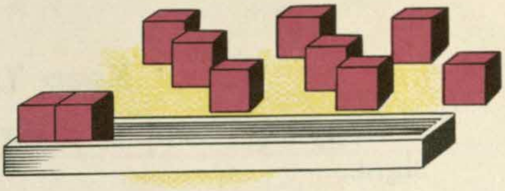
a	*b*	*c*	*d*	*e*	*f*	*g*	
12 − 7	4 − 3	15 − 6	8 − 4	10 − 3	16 − 9	3 − 1	A
13 − 5	7 − 3	15 − 8	9 − 6	10 − 5	17 − 9	6 − 4	B
12 − 8	6 − 3	15 − 9	8 − 5	10 − 4	12 − 5	5 − 2	C
13 − 6	7 − 4	16 − 8	2 − 1	10 − 7	10 − 9	4 − 2	D
13 − 4	8 − 3	15 − 7	5 − 3	10 − 6	12 − 4	4 − 1	E
13 − 7	9 − 3	14 − 5	11 − 8	5 − 4	14 − 8	6 − 5	F
13 − 8	8 − 7	14 − 6	11 − 4	5 − 1	12 − 3	8 − 6	G

Answer the Questions

Copy these examples. Write numbers in place of the question marks.

	a	*b*	*c*	*d*	*e*
1.	11−3=?	11−?=2	11−5=?	9−?=4	?−7=2
2.	11−7=?	10−?=9	12−6=?	7−?=1	?−2=9
3.	11−8=?	10−?=8	11−6=?	9−?=5	?−8=1
4.	11−4=?	11−?=9	12−9=?	6−?=5	?−2=6
5.	13−6=?	12−?=5	14−5=?	3−?=1	?−2=4

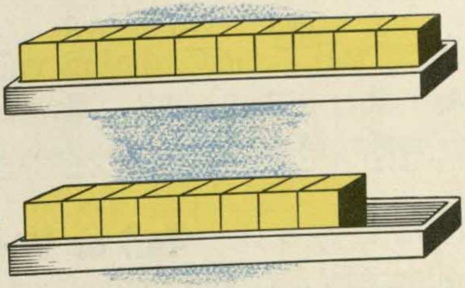

A


B

What Does It Mean to Subtract?

1. Look at the red blocks. How many are in the box in Picture **A?** How many are left in the box in Picture **B?** What happened to 8 blocks? 10 – 8 = ?

2. How many yellow blocks are in each box? Which box has more than the other? How many more? How many less are in the other box?

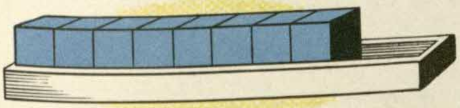

C

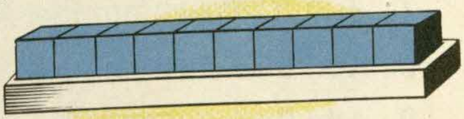
10 – 8 = ?

3. Look at the blue blocks in the pictures below. How many blocks are in Picture **D**? How many are in Picture **E**? How many had to be added to fill the box? What happened from the first picture to the second?

4. All the picture stories show 10 – 8 = 2. Tell which pictures show:

a. How many need to be added?
b. How many taken away?
c. How many more or less?
d. A remainder?
e. A difference?


D


E

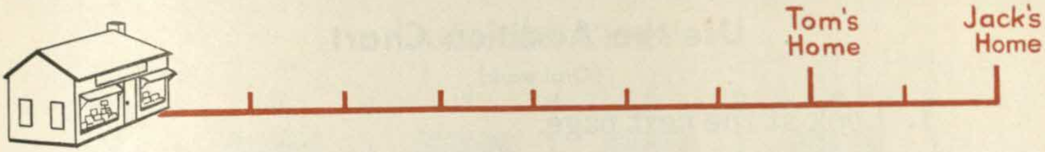
Keep Your Skill

Copy the examples. Write the answers. Watch the signs.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	5 +6	3 +5	9 +5	8 +7	8 +5	3 +9	4 +7	8 +4
2.	11 −4	14 −7	11 −7	12 −8	12 −9	13 −5	12 −4	11 −8
3.	7 −2	5 +3	6 −1	10 −8	8 −4	5 +7	7 +8	7 +4
4.	7 −6	6 +1	3 +1	4 +2	2 +8	6 +7	5 +1	8 +6

Tell or Write

1. Subtract 3 from each number: 5, 11, 8, 6, 7, 10, 9, 12.
2. Subtract 5 from each number: 14, 12, 13, 10, 8, 6, 7, 11, 9.
3. Subtract 4 from each number: 7, 6, 8, 5, 10, 11, 12, 13, 9.
4. Subtract 6 from each number: 10, 7, 12, 14, 8, 11, 9, 15, 13.
5. Subtract 7 from each number: 8, 13, 11, 15, 14, 9, 12, 16, 10.
6. Add 3 to each number: 7, 4, 6, 8, 1, 9, 5, 3, 2.
7. Add 5 to each number: 3, 9, 7, 6, 8, 1, 2, 4, 5.
8. Add 6 to each number: 3, 8, 9, 4, 1, 7, 5, 2, 6.
9. Add 7 to each number: 9, 4, 8, 6, 3, 7, 5, 1, 2.



How Well Can You Work Problems?

(Problem Test 2)

1. Tom lives 7 blocks from the store. Jack lives 9 blocks from the store. Jack has to walk farther to get to the store. How much farther?

2. Jane's father drove his car 7 miles in the morning and 9 miles in the afternoon. Tell how far he drove that day.

3. Sally went to see her grandmother. Her grandmother lives 18 blocks away. Sally got a ride for 9 blocks. She walked the rest of the way. How far did she have to walk?

4. Dick wanted to see an air show. It was 17 blocks from his home. He got a ride for 8 blocks. He walked the rest of the way. How far did he have to walk?

5. Dick saw 7 airplanes on the ground and 6 in the air. How many airplanes did he see?

6. Before Dick went home, some of the airplanes flew away. There were 13 airplanes when he came. Eight of them flew away. How many were left?

7. The picture at the top of the page goes with Problem **1.** Draw pictures to show that your other answers are right.

★**8.** Write problems of your own. Use the numbers below. Give the answers to your own problems.

a. $13 - 8$
b. $16 - 7$
c. $14 - 7$
d. $17 - 8$
e. $9 + 7$
f. $8 + 9$
g. $7 + 6$
h. $8 + 8$
i. $15 - 6$
j. $15 - 7$
k. $12 - 7$
l. $16 - 9$
m. $6 + 9$
n. $7 + 8$
o. $3 + 9$
p. $7 + 5$

Use the Addition Chart

(Oral work)

1. Look at the next page.

a. Read the sums across the page. Do they sound like counting forward?

b. Read the sums from top to bottom. How do they sound?

2. Put a sheet of paper under the facts that have the same sum, like 9. Where do you find each group?

a. Sums of 9.
b. Sums of 5.
c. Sums of 8.
d. Sums of 3.
e. Sums of 7.
f. Sums of 6.
g. Sums of 4.
h. Sums of 12.
i. Sums of 11.
j. Sums of 16.
k. Sums of 13.
l. Sums of 14.
m. Sums of 10.
n. Sums of 15.
o. Sums of 17.

3. Tell easy ways to find the sum:

a. When you add 1.
b. When you add 2.
c. When you add 9.
d. When you add doubles.
e. When you add near-doubles.
f. When you add to get 10 or more.

4. On the addition chart where are the:

a. doubles?
b. adding-one facts?
c. adding-two facts?
d. near-doubles?
e. adding-nine facts?
f. sums above 10?

5. Write or tell the sums:

a. $3+8$
b. $5+3$
c. $6+3$
d. $8+3$
e. $4+9$
f. $3+5$
g. $1+2$
h. $7+3$
i. $9+3$
j. $3+6$
k. $3+9$
l. $7+4$
m. $6+4$
n. $8+4$
o. $1+8$
p. $2+1$
q. $9+4$
r. $7+8$
s. $5+7$
t. $4+8$
u. $7+5$
v. $5+8$
w. $6+8$
x. $5+9$
y. $8+6$

Addition Chart

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	$\begin{array}{r}1\\1\\\hline 2\end{array}$	$\begin{array}{r}1\\2\\\hline 3\end{array}$	$\begin{array}{r}1\\3\\\hline 4\end{array}$	$\begin{array}{r}1\\4\\\hline 5\end{array}$	$\begin{array}{r}1\\5\\\hline 6\end{array}$	$\begin{array}{r}1\\6\\\hline 7\end{array}$	$\begin{array}{r}1\\7\\\hline 8\end{array}$	$\begin{array}{r}1\\8\\\hline 9\end{array}$	$\begin{array}{r}1\\9\\\hline 10\end{array}$
2.	$\begin{array}{r}2\\1\\\hline 3\end{array}$	$\begin{array}{r}2\\2\\\hline 4\end{array}$	$\begin{array}{r}2\\3\\\hline 5\end{array}$	$\begin{array}{r}2\\4\\\hline 6\end{array}$	$\begin{array}{r}2\\5\\\hline 7\end{array}$	$\begin{array}{r}2\\6\\\hline 8\end{array}$	$\begin{array}{r}2\\7\\\hline 9\end{array}$	$\begin{array}{r}2\\8\\\hline 10\end{array}$	$\begin{array}{r}2\\9\\\hline 11\end{array}$
3.	$\begin{array}{r}3\\1\\\hline 4\end{array}$	$\begin{array}{r}3\\2\\\hline 5\end{array}$	$\begin{array}{r}3\\3\\\hline 6\end{array}$	$\begin{array}{r}3\\4\\\hline 7\end{array}$	$\begin{array}{r}3\\5\\\hline 8\end{array}$	$\begin{array}{r}3\\6\\\hline 9\end{array}$	$\begin{array}{r}3\\7\\\hline 10\end{array}$	$\begin{array}{r}3\\8\\\hline 11\end{array}$	$\begin{array}{r}3\\9\\\hline 12\end{array}$
4.	$\begin{array}{r}4\\1\\\hline 5\end{array}$	$\begin{array}{r}4\\2\\\hline 6\end{array}$	$\begin{array}{r}4\\3\\\hline 7\end{array}$	$\begin{array}{r}4\\4\\\hline 8\end{array}$	$\begin{array}{r}4\\5\\\hline 9\end{array}$	$\begin{array}{r}4\\6\\\hline 10\end{array}$	$\begin{array}{r}4\\7\\\hline 11\end{array}$	$\begin{array}{r}4\\8\\\hline 12\end{array}$	$\begin{array}{r}4\\9\\\hline 13\end{array}$
5.	$\begin{array}{r}5\\1\\\hline 6\end{array}$	$\begin{array}{r}5\\2\\\hline 7\end{array}$	$\begin{array}{r}5\\3\\\hline 8\end{array}$	$\begin{array}{r}5\\4\\\hline 9\end{array}$	$\begin{array}{r}5\\5\\\hline 10\end{array}$	$\begin{array}{r}5\\6\\\hline 11\end{array}$	$\begin{array}{r}5\\7\\\hline 12\end{array}$	$\begin{array}{r}5\\8\\\hline 13\end{array}$	$\begin{array}{r}5\\9\\\hline 14\end{array}$
6.	$\begin{array}{r}6\\1\\\hline 7\end{array}$	$\begin{array}{r}6\\2\\\hline 8\end{array}$	$\begin{array}{r}6\\3\\\hline 9\end{array}$	$\begin{array}{r}6\\4\\\hline 10\end{array}$	$\begin{array}{r}6\\5\\\hline 11\end{array}$	$\begin{array}{r}6\\6\\\hline 12\end{array}$	$\begin{array}{r}6\\7\\\hline 13\end{array}$	$\begin{array}{r}6\\8\\\hline 14\end{array}$	$\begin{array}{r}6\\9\\\hline 15\end{array}$
7.	$\begin{array}{r}7\\1\\\hline 8\end{array}$	$\begin{array}{r}7\\2\\\hline 9\end{array}$	$\begin{array}{r}7\\3\\\hline 10\end{array}$	$\begin{array}{r}7\\4\\\hline 11\end{array}$	$\begin{array}{r}7\\5\\\hline 12\end{array}$	$\begin{array}{r}7\\6\\\hline 13\end{array}$	$\begin{array}{r}7\\7\\\hline 14\end{array}$	$\begin{array}{r}7\\8\\\hline 15\end{array}$	$\begin{array}{r}7\\9\\\hline 16\end{array}$
8.	$\begin{array}{r}8\\1\\\hline 9\end{array}$	$\begin{array}{r}8\\2\\\hline 10\end{array}$	$\begin{array}{r}8\\3\\\hline 11\end{array}$	$\begin{array}{r}8\\4\\\hline 12\end{array}$	$\begin{array}{r}8\\5\\\hline 13\end{array}$	$\begin{array}{r}8\\6\\\hline 14\end{array}$	$\begin{array}{r}8\\7\\\hline 15\end{array}$	$\begin{array}{r}8\\8\\\hline 16\end{array}$	$\begin{array}{r}8\\9\\\hline 17\end{array}$
9.	$\begin{array}{r}9\\1\\\hline 10\end{array}$	$\begin{array}{r}9\\2\\\hline 11\end{array}$	$\begin{array}{r}9\\3\\\hline 12\end{array}$	$\begin{array}{r}9\\4\\\hline 13\end{array}$	$\begin{array}{r}9\\5\\\hline 14\end{array}$	$\begin{array}{r}9\\6\\\hline 15\end{array}$	$\begin{array}{r}9\\7\\\hline 16\end{array}$	$\begin{array}{r}9\\8\\\hline 17\end{array}$	$\begin{array}{r}9\\9\\\hline 18\end{array}$

Use the Subtraction Chart

1. Look at the next page.
- *a.* Read the remainders across the page. How do they sound?
- *b.* Read the remainders from top to bottom. What do you see?

2. Which row has all the facts in which:
- *a.* 1 is subtracted?
- *b.* 2 is subtracted?
- *c.* 5 is subtracted?
- *d.* 9 is subtracted?

3. Tell where these remainders are in the chart: 5, 2, 1, 7, 8, 3, 6, 4, 9.

4. Tell some easy ways to find remainders. Then tell how the easy way works with the facts in the chart. Tell the easy way to subtract:
- *a.* When you subtract 9.
- *b.* When you subtract 1.
- *c.* When you subtract 2.
- *d.* When you know the addition fact.
- *e.* When you subtract from a number bigger than 10.

5. Write or tell the remainders:

a. 10 − 6
b. 11 − 3
c. 10 − 4
d. 16 − 8
e. 11 − 4
f. 9 − 6
g. 7 − 4
h. 9 − 8
i. 7 − 3
j. 9 − 5
k. 12 − 6
l. 10 − 3
m. 14 − 7
n. 13 − 8
o. 10 − 5
p. 14 − 6
q. 12 − 7
r. 14 − 9
s. 12 − 5
t. 10 − 7
u. 13 − 9
v. 12 − 8
w. 11 − 7
x. 13 − 6
y. 10 − 9

★6. Which subtraction facts go with:
- *a.* The addition doubles?
- *b.* The addition near-doubles?
- *c.* Addition facts with sums above 10?

Subtraction Chart

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	$\begin{array}{r}2\\1\\\hline 1\end{array}$	$\begin{array}{r}3\\1\\\hline 2\end{array}$	$\begin{array}{r}4\\1\\\hline 3\end{array}$	$\begin{array}{r}5\\1\\\hline 4\end{array}$	$\begin{array}{r}6\\1\\\hline 5\end{array}$	$\begin{array}{r}7\\1\\\hline 6\end{array}$	$\begin{array}{r}8\\1\\\hline 7\end{array}$	$\begin{array}{r}9\\1\\\hline 8\end{array}$	$\begin{array}{r}10\\1\\\hline 9\end{array}$
2.	$\begin{array}{r}3\\2\\\hline 1\end{array}$	$\begin{array}{r}4\\2\\\hline 2\end{array}$	$\begin{array}{r}5\\2\\\hline 3\end{array}$	$\begin{array}{r}6\\2\\\hline 4\end{array}$	$\begin{array}{r}7\\2\\\hline 5\end{array}$	$\begin{array}{r}8\\2\\\hline 6\end{array}$	$\begin{array}{r}9\\2\\\hline 7\end{array}$	$\begin{array}{r}10\\2\\\hline 8\end{array}$	$\begin{array}{r}11\\2\\\hline 9\end{array}$
3.	$\begin{array}{r}4\\3\\\hline 1\end{array}$	$\begin{array}{r}5\\3\\\hline 2\end{array}$	$\begin{array}{r}6\\3\\\hline 3\end{array}$	$\begin{array}{r}7\\3\\\hline 4\end{array}$	$\begin{array}{r}8\\3\\\hline 5\end{array}$	$\begin{array}{r}9\\3\\\hline 6\end{array}$	$\begin{array}{r}10\\3\\\hline 7\end{array}$	$\begin{array}{r}11\\3\\\hline 8\end{array}$	$\begin{array}{r}12\\3\\\hline 9\end{array}$
4.	$\begin{array}{r}5\\4\\\hline 1\end{array}$	$\begin{array}{r}6\\4\\\hline 2\end{array}$	$\begin{array}{r}7\\4\\\hline 3\end{array}$	$\begin{array}{r}8\\4\\\hline 4\end{array}$	$\begin{array}{r}9\\4\\\hline 5\end{array}$	$\begin{array}{r}10\\4\\\hline 6\end{array}$	$\begin{array}{r}11\\4\\\hline 7\end{array}$	$\begin{array}{r}12\\4\\\hline 8\end{array}$	$\begin{array}{r}13\\4\\\hline 9\end{array}$
5.	$\begin{array}{r}6\\5\\\hline 1\end{array}$	$\begin{array}{r}7\\5\\\hline 2\end{array}$	$\begin{array}{r}8\\5\\\hline 3\end{array}$	$\begin{array}{r}9\\5\\\hline 4\end{array}$	$\begin{array}{r}10\\5\\\hline 5\end{array}$	$\begin{array}{r}11\\5\\\hline 6\end{array}$	$\begin{array}{r}12\\5\\\hline 7\end{array}$	$\begin{array}{r}13\\5\\\hline 8\end{array}$	$\begin{array}{r}14\\5\\\hline 9\end{array}$
6.	$\begin{array}{r}7\\6\\\hline 1\end{array}$	$\begin{array}{r}8\\6\\\hline 2\end{array}$	$\begin{array}{r}9\\6\\\hline 3\end{array}$	$\begin{array}{r}10\\6\\\hline 4\end{array}$	$\begin{array}{r}11\\6\\\hline 5\end{array}$	$\begin{array}{r}12\\6\\\hline 6\end{array}$	$\begin{array}{r}13\\6\\\hline 7\end{array}$	$\begin{array}{r}14\\6\\\hline 8\end{array}$	$\begin{array}{r}15\\6\\\hline 9\end{array}$
7.	$\begin{array}{r}8\\7\\\hline 1\end{array}$	$\begin{array}{r}9\\7\\\hline 2\end{array}$	$\begin{array}{r}10\\7\\\hline 3\end{array}$	$\begin{array}{r}11\\7\\\hline 4\end{array}$	$\begin{array}{r}12\\7\\\hline 5\end{array}$	$\begin{array}{r}13\\7\\\hline 6\end{array}$	$\begin{array}{r}14\\7\\\hline 7\end{array}$	$\begin{array}{r}15\\7\\\hline 8\end{array}$	$\begin{array}{r}16\\7\\\hline 9\end{array}$
8.	$\begin{array}{r}9\\8\\\hline 1\end{array}$	$\begin{array}{r}10\\8\\\hline 2\end{array}$	$\begin{array}{r}11\\8\\\hline 3\end{array}$	$\begin{array}{r}12\\8\\\hline 4\end{array}$	$\begin{array}{r}13\\8\\\hline 5\end{array}$	$\begin{array}{r}14\\8\\\hline 6\end{array}$	$\begin{array}{r}15\\8\\\hline 7\end{array}$	$\begin{array}{r}16\\8\\\hline 8\end{array}$	$\begin{array}{r}17\\8\\\hline 9\end{array}$
9.	$\begin{array}{r}10\\9\\\hline 1\end{array}$	$\begin{array}{r}11\\9\\\hline 2\end{array}$	$\begin{array}{r}12\\9\\\hline 3\end{array}$	$\begin{array}{r}13\\9\\\hline 4\end{array}$	$\begin{array}{r}14\\9\\\hline 5\end{array}$	$\begin{array}{r}15\\9\\\hline 6\end{array}$	$\begin{array}{r}16\\9\\\hline 7\end{array}$	$\begin{array}{r}17\\9\\\hline 8\end{array}$	$\begin{array}{r}18\\9\\\hline 9\end{array}$

Review of Unit 2

1. Copy these addition examples. Write the sums. Leave room to write 3 other facts beside each one.

a	*b*	*c*	*d*	*e*	*f*
$\begin{array}{r}4\\+9\\\hline\end{array}$	$\begin{array}{r}9\\+6\\\hline\end{array}$	$\begin{array}{r}8\\+9\\\hline\end{array}$	$\begin{array}{r}9\\+5\\\hline\end{array}$	$\begin{array}{r}9\\+7\\\hline\end{array}$	$\begin{array}{r}3\\+9\\\hline\end{array}$

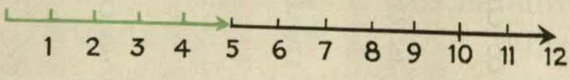
2. Beside each fact above write the 3 other addition and subtraction facts that go with it. Make a family of facts. The first one is done for you.

$$\begin{array}{r}4\\+9\\\hline 13\end{array}\quad\begin{array}{r}9\\+4\\\hline 13\end{array}\qquad\begin{array}{r}13\\-4\\\hline 9\end{array}\quad\begin{array}{r}13\\-9\\\hline 4\end{array}$$

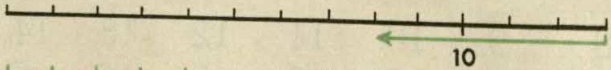
3. Look at these number lines. On your paper write the number fact that goes with each number line.

$5 + 7 = ?$ $\quad 5 + 8 = ?$ $\quad 13 - 5 = ?$ $\quad 12 - 6 = ?$

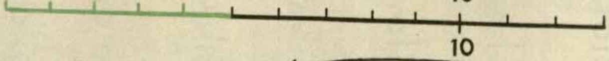
a.



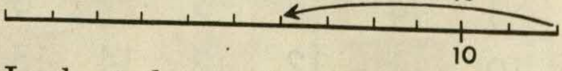
b.



c.



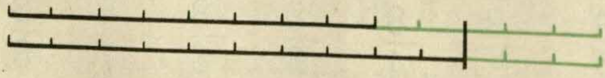
d.



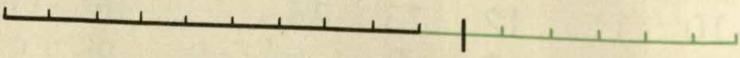
★**4.** Look at the number lines below. Tell which one shows that:

a. $9+7=10+?$ *b.* $8+5=10+3=13$ *c.* $14-9=1+4=5$

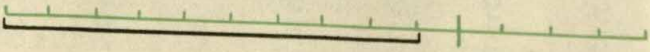
A



B



C



How Much Have You Learned?

(Chapter Test 2)

Part 1

Copy and add. These are all the addition facts you have studied. You should know all of them.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	2 +2	1 +1	5 +5	4 +4	9 +1	1 +4	3 +3	3 +1	5 +1
2.	1 +5	8 +1	1 +7	1 +3	1 +6	2 +1	7 +1	4 +1	6 +1
3.	1 +9	6 +6	1 +8	1 +2	3 +2	5 +2	6 +2	2 +7	7 +7
4.	2 +3	2 +8	9 +2	4 +3	3 +8	7 +3	7 +2	4 +2	5 +3
5.	2 +6	3 +7	5 +4	3 +4	6 +3	8 +3	2 +9	3 +5	2 +5
6.	3 +6	4 +5	9 +3	7 +4	8 +2	8 +5	8 +4	9 +9	3 +9
7.	2 +4	8 +8	9 +4	5 +6	6 +5	5 +8	4 +6	4 +7	4 +9
8.	5 +9	4 +8	6 +4	7 +5	9 +6	9 +5	8 +9	7 +6	9 +8
9.	5 +7	6 +9	8 +6	6 +7	8 +7	6 +8	7 +8	9 +7	7 +9

Part 2

Copy and subtract. These are all the subtraction facts you have studied. You should know all of them.

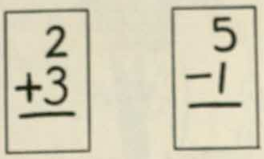
	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	3 −1	9 −1	4 −1	4 −2	2 −1	5 −2	7 −1	8 −4	3 −2
2.	6 −1	4 −3	10 −1	6 −3	9 −2	7 −2	8 −7	10 −2	5 −3
3.	5 −4	5 −1	8 −1	10 −5	11 −2	8 −2	6 −2	6 −5	7 −6
4.	9 −8	14 −7	8 −6	7 −3	10 −3	18 −9	10 −8	8 −3	10 −9
5.	9 −3	12 −6	16 −8	6 −4	9 −5	7 −5	7 −4	10 −4	9 −7
6.	9 −4	10 −7	11 −9	10 −6	11 −5	9 −6	11 −3	8 −5	12 −9
7.	12 −3	17 −8	17 −9	11 −8	15 −9	13 −7	11 −4	11 −7	15 −8
8.	12 −8	13 −9	13 −5	12 −4	13 −6	12 −5	15 −6	14 −8	14 −9
9.	13 −4	11 −6	12 −7	13 −8	16 −9	14 −6	14 −5	15 −7	16 −7

Cards for Practice

Jim holds up the cards. Carl says the answers. If Carl says the right answer, Jim puts down the card. If Carl does not say the right answer, Jim turns the card around. Then Carl can see the right answer. Carl will keep that card and study it.

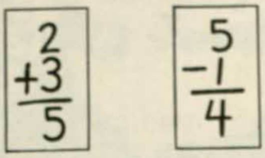
1. Make a list of all the number facts that you missed on pages 65 and 66. If you are not very sure of some other facts, write them too.

Front of card



2. For each fact on your list make a practice card like the cards Carl and Jim have. On one side of the card write the numbers without the answer.

Back of card



3. On the other side of each card write the same numbers with the answer.

4. Practice until you know all the facts and can say them quickly. Look at the answer if you need to. You can practice alone or with some other boy or girl.

CHAPTER

3

Larger Sums and Differences

UNIT 1 COLUMN ADDITION

Fishing Fun

Tom, Joe, and Dick have been fishing. They look as if they had fun.

1. Which boy got the most fish?

2. How many fish did the first boy catch? The second boy?

3. How many fish did the first two boys catch?

4. How many fish did the third boy catch?

5. How many fish did the three boys catch?

6. How many addition facts did you use? What were they?

Here are two ways we can write our work. The black numbers show what we write. The green numbers show what we think. Study both ways.

One Way

$$\begin{array}{r} 3 \\ 2 \\ \underline{4} \\ 9 \end{array} \qquad \begin{array}{r} 3 \\ \underline{+2} \\ 5 \end{array} \qquad \begin{array}{r} 5 \\ \underline{+4} \\ 9 \end{array}$$

Another Way

$3 + 2 + 4 = 9$

$3 + 2 = 5$

$5 + 4 = 9$

We do not write the sum 5. We just **think** it. We write the sum 9. It is the sum of all three numbers.

▶ Look at "One Way" above. The numbers are placed in a **column**, one under the other. We call this **column addition.**

Where have you seen columns of numbers?

Practice in Adding Three Numbers

Copy and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	1	2	6	1	4	3	2	1
	1	6	2	3	1	2	1	4
	1	1	1	1	1	2	3	2
2.	2	2	6	2	3	1	2	1
	2	2	1	1	3	7	2	3
	1	2	1	1	2	1	3	4

3. In each column below the same three numbers are given. How are the columns different? What are the sums?

a	*b*	*c*	*d*	*e*	*f*
4	3	2	3	2	4
3	2	4	4	3	2
2	4	3	2	4	3

4. What do you see about the sums? Why are the sums alike?

Money for a Food Basket

(Column addition of three numbers, sums under 10)

The children in the picture on the next page are putting food in a basket for some people who need it. All the children wanted to help. Some children brought things to put in the basket. Some brought money to help buy things.

One child in each row took care of the money for his row. On the next page we see how much money was brought by the children in each row.

1. Copy the numbers for each row. Find the sums. Add down, from top to bottom. Write the names (Susan, Carl, Jack, Mary, Betty, Joe, Ann) when you copy the numbers.

Susan	Carl	Jack	Mary	Betty	Joe	Ann
1¢	2¢	2¢	2¢	1¢	2¢	1¢
4¢	4¢	5¢	5¢	1¢	6¢	4¢
2¢	2¢	1¢	2¢	5¢	1¢	2¢

2. Be sure that your sums are right. Add the numbers again. This time add from bottom to top. You should get the same sums as before. If you get the same sum, we say the addition **checks.**

Adding		**Checking**	
1¢ ↓	1¢ + 4¢ = 5¢	1¢ ↑	2¢ + 4¢ = 6¢
4¢ ↓	5¢ + 2¢ = 7¢	4¢ ↑	6¢ + 1¢ = 7¢
2¢ ↓		2¢ ↑	
7¢		7¢	

We get 7¢ as the sum when we add down and also when we add up. We have **checked** our work. If we do not get the same sum both times, we must look for our mistake.

Selling Papers

(Column addition of four numbers, sums 10 or less)

1. Joe sells papers each day after school. He has been trying to get more people to buy the paper. He got 4 new buyers on Monday, 2 on Tuesday, 1 on Wednesday, and 2 on Thursday. How many new buyers did he get in the four days?

$4 + 2 = 6 \qquad 6 + 1 = 7 \qquad 7 + 2 = ?$

2. Joe and some other boys worked in teams. There were 6 teams with 4 boys on each team. The numbers below tell how many new people bought the paper on Friday. Find the sum for each team.

Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
1	2	1	1	2	1
5	3	4	6	1	1
1	2	3	1	2	2
2	2	1	2	4	2

3. One boy got 5 new buyers. His whole team got 9. How many did the other boys on that team get?

4. Jim sold 3 papers. He walked a little way and sold 1 paper, then 2 more. He went on and sold 3 more. How many papers did he sell?

5. Jack sells papers in the store where he works. One day he sold 2 papers to one man, 3 papers to another man, 1 paper to the next man, and 2 papers to still another man. How many papers did he sell in all?

6. Dick had 13 papers to sell. After he had sold 9, how many did Dick still have to sell?

7. Check all your sums by **adding up.**

Helping in the Toy Store

(Column addition of three numbers, larger sums)

Jane helped her mother in the toy store one day after school. These are the prices of some toys that Jane sold:

Top	4¢	Doll	7¢	Balloon	5¢	Horn	3¢
Ball	5¢	Jacks	6¢	Marble	2¢		

Jack is buying a balloon, a top, and a horn. How much should he pay Jane?

Jane wrote:	Balloon	5¢	Jane thought:
	Top	4¢	5¢ + 4¢ = 9¢
	Horn	3¢	9¢ + 3¢ = 12¢
		12¢	

Play that you are Jane. Tell how much each child should pay for what he bought. Write your work.

a. Alice bought a ball, a horn, and jacks.
b. Jim bought jacks, a horn, and a top.
c. Sue bought a doll, a marble, and jacks.
d. Dick bought a top, a ball, and a horn.
e. Carl bought a balloon, a marble, and a top.
f. Mary bought jacks, a marble, and a doll.

Check all your sums by adding up.

How Well Do You Add?

Copy these examples. Add from top to bottom. Check by adding from bottom to top.

You **write:**

$$\begin{array}{r}3\\1\\\underline{9}\\13\end{array}$$

You **think:**

$3 + 1 = 4$
$4 + 9 = 13$

You **may say** only this:

3, 4, 13

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	6 2 3	1 3 5	2 4 4	1 3 3	6 3 3	1 4 4	4 1 7	8 1 6	3 1 8
2.	1 2 6	3 4 3	5 1 8	4 1 3	6 3 2	1 6 3	4 5 3	2 2 6	4 3 4
3.	8 1 1	5 1 2	2 2 7	5 2 2	4 4 5	5 1 4	3 3 5	6 3 1	2 1 8
4.	2 2 4	1 2 4	4 5 2	2 3 5	1 5 4	3 6 3	3 5 1	3 2 7	3 1 7
5.	6 3 6	4 3 3	7 2 7	5 3 5	3 2 5	8 1 8	2 1 6	7 1 7	4 4 4
6.	5 2 5	6 1 3	4 1 6	5 1 7	3 3 3	7 1 6	4 2 5	2 5 3	1 2 7

Playing Hide-and-Seek

1. Some girls were playing hide-and-seek. Seven girls ran away to hide. The girl who was "it" found 2 of them. How many more girls should she look for? How did you get your answer?

2. Across the street from the girls, some boys were playing hide-and-seek. Nine boys had gone to hide, and 3 had been found. How many were still hiding?

3. How many children went away to hide? Remember that there were 7 girls and 9 boys who went to hide.

4. Each child had to hide by himself. The 9 boys needed more hiding places than the 7 girls. How many more?

5. How many children were playing hide-and-seek? Remember that there were 2 children who were "it," and 7 girls and 9 boys who went to hide.

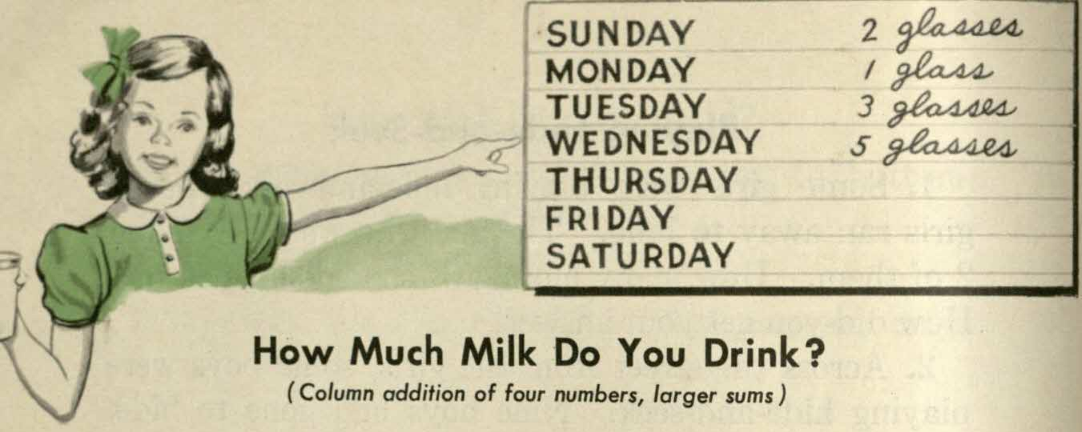
Time for Practice

Copy these examples. Add. Check.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	6	1	5	7	4	6	8	3	3
	1	8	1	2	5	2	1	5	2
	9	1	8	7	2	6	8	3	6
2.	5	5	1	6	4	1	7	5	5
	2	1	1	3	2	7	1	3	1
	6	8	7	6	7	2	7	5	5

3. Copy these examples. Subtract as quickly as you can. Write the answers.

10	12	13	15	9	14	17	13	9
−7	−5	−7	−7	−3	−6	−9	−8	−6



SUNDAY	2 glasses
MONDAY	1 glass
TUESDAY	3 glasses
WEDNESDAY	5 glasses
THURSDAY	
FRIDAY	
SATURDAY	

How Much Milk Do You Drink?

(Column addition of four numbers, larger sums)

Each day Jane writes how many glasses of milk she drinks. How many glasses of milk has she had so far this week?

Add four numbers in a column the same way that you add three numbers in a column.

$$\begin{array}{rl} 2 & \\ 1 & 2+1=3 \\ 3 & 3+3=6 \\ \underline{5} & 6+5=11 \\ 11 & \end{array}$$

The black numbers are those you **see** and **write.** The green numbers are those you **think.**

Copy these examples and add down. Check your answer by adding up.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	1	5	3	4	1	1	3	4	1
	1	2	4	1	5	2	2	1	3
	4	1	1	2	1	2	3	4	2
	4	3	4	6	3	5	4	3	4
2.	3	2	5	1	7	3	4	1	1
	1	3	1	2	1	1	3	5	1
	3	3	3	5	1	5	1	2	6
	5	2	4	1	6	3	5	2	2

3. Add the same numbers without writing.

Review of Unit 1

Look at the first column below. When you add it, you may say: 5 + 2 = 7, 7 + 2 = 9.

Or you may say only the sums, like this: 7, 9.

Add these columns from top to bottom. Write only the sums.

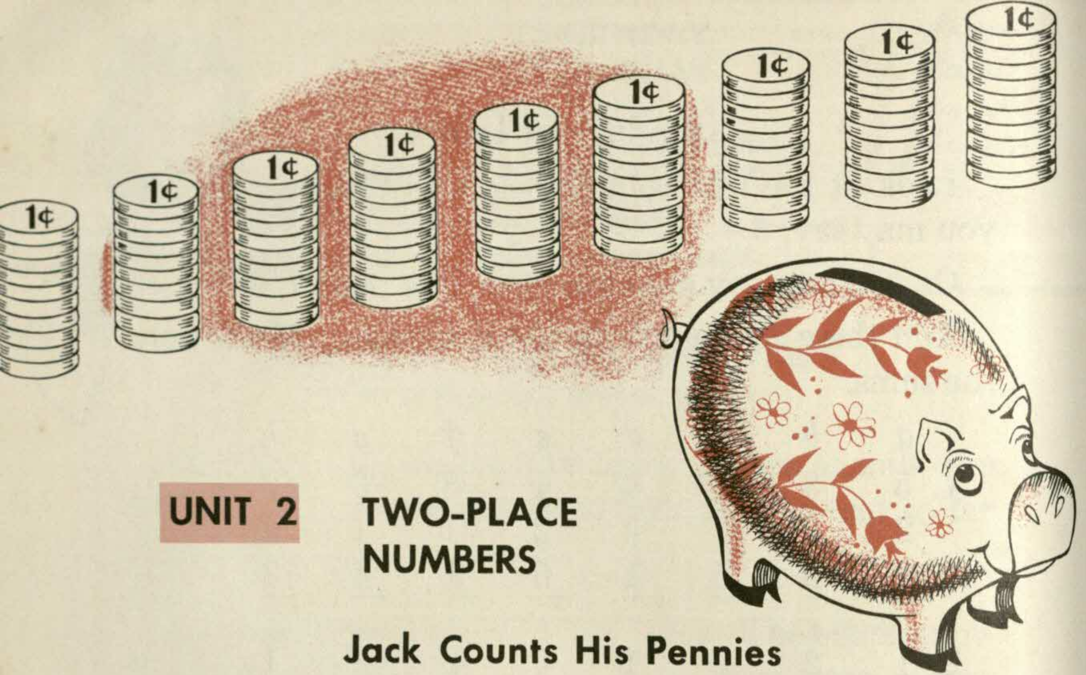
	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	5	3	1	4	1	8	3	2
	2	3	3	4	2	1	1	3
	2	3	5	1	6	1	4	2
2.	1	2	2	1	6	2	2	1
	3	1	2	3	1	5	3	2
	3	2	1	4	2	1	4	2
	2	4	5	1	1	1	1	3

3. Do **1** and **2** again. This time add up. Say only the sums. See if you get the same answers.

Copy these columns. Write the answers.

4.	3	4	6	4	6	5	5	8
	2	2	1	1	3	3	2	1
	7	7	8	8	6	6	7	8
5.	3	2	4	5	7	1	2	2
	1	3	1	1	1	2	1	2
	4	3	3	2	1	3	3	2
	4	3	4	6	6	4	5	5

6. Check all your sums. Add the columns from bottom to top.



UNIT 2 TWO-PLACE NUMBERS

Jack Counts His Pennies

(Counting by tens; concept of tens)

1. How many groups of 10 pennies each does Jack have? How many pennies does Jack have? How do you know?

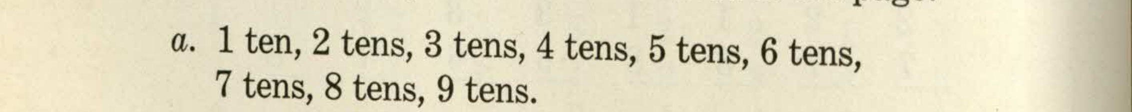
2. What coin can Jack get for each group of pennies? How many dimes can he get?

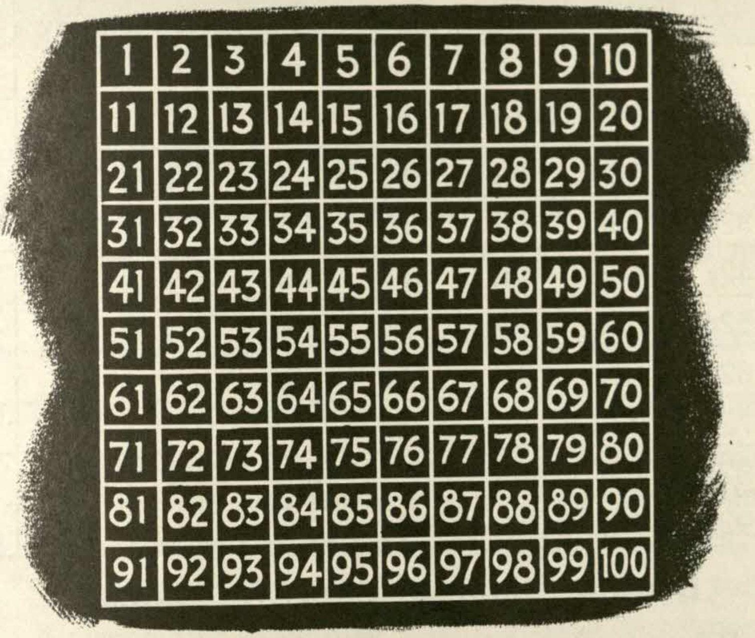
3. Here are three ways of counting. Tell which ways go with the picture at the top of the page. Tell which ways go with the picture at the bottom of the page.

a. 1 ten, 2 tens, 3 tens, 4 tens, 5 tens, 6 tens, 7 tens, 8 tens, 9 tens.

b. 1 dime, 2 dimes, 3 dimes, 4 dimes, 5 dimes, 6 dimes, 7 dimes, 8 dimes, 9 dimes.

c. 10¢, 20¢, 30¢, 40¢, 50¢, 60¢, 70¢, 80¢, 90¢.





1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

One Hundred Chart

1. Which row on the chart has the "teens" in it? Read it.

2. Which row has all the numbers between 20 and 30? Read it.

3. Count by tens. Which column on the chart has all the "even tens" in it?

4. Start with 6 in the top row. Read down the column from 6 to 96. You were counting by tens from 6.

5. Start with 5. Count by fives from there to 50. Where do you go on the chart when you count by fives?

6. Start with 99. Count backward by tens.

★**7.** Make up other questions about counting on the hundred chart. Start at a different place each time. Count by 1's or 2's, or 5's or 10's. Count forward and backward.

	a	b	c	d	e	f	g	h	i	j
A	1¢	2¢	3¢	4¢	5¢	6¢	7¢	8¢	9¢	10¢
B	11¢	12¢	13¢	14¢	15¢	16¢	17¢	18¢	19¢	20¢
C	21¢	22¢	23¢	24¢	25¢	26¢	27¢	28¢	29¢	30¢
D	31¢	32¢	33¢	34¢	35¢	36¢	37¢	38¢	39¢	40¢
E	41¢	42¢	43¢	44¢	45¢	46¢	47¢	48¢	49¢	50¢
F	51¢	52¢	53¢	54¢	55¢	56¢	57¢	58¢	59¢	60¢
G	61¢	62¢	63¢	64¢	65¢	66¢	67¢	68¢	69¢	70¢
H	71¢	72¢	73¢	74¢	75¢	76¢	77¢	78¢	79¢	80¢
I	81¢	82¢	83¢	84¢	85¢	86¢	87¢	88¢	89¢	90¢
J	91¢	92¢	93¢	94¢	95¢	96¢	97¢	98¢	99¢	$1

Use the Hundred Chart for Money

1. What is a 1-place number? How many do you see in the first row on the chart above?

2. What is a 2-place number? How many do you see on the whole chart?

3. Think of a money number like 35¢. Which figure tells how many dimes? Which tells how many pennies?

4. How many pennies would you need to show 90¢? How many dimes would show 90¢?

5. In the number 43¢, what does the 3 mean? The 4?

6. In the number 40¢, what does the 4 mean? 4 what? What does the 0 mean? What does it tell us?

Write numbers in place of the question marks.

7. 22¢ = ? dimes and ? pennies
8. 40¢ = ? dimes and ? pennies
9. 89¢ = ? dimes and ? pennies
10. 65¢ = ? dimes and ? pennies
11. 14¢ = ? dimes and ? pennies
12. 31¢ = ? dimes and ? pennies

★**13.** The last on the chart is $1. How many dollars is it worth? How many pennies? How many dimes?

Counting Dimes and Pennies

1. When Jane went to the store, she had 5 dimes and 8 pennies. How many cents did she have in all?

2. When she came home, Jane had 2 dimes and 3 pennies. How many cents did she have left?

3. Tell how much money you have when you have:

a. 2 dimes and 4 pennies
b. 0 dimes and 7 pennies
c. 6 dimes and 3 pennies
d. 5 dimes and 5 pennies
e. 7 dimes and 0 pennies
f. 4 dimes and 6 pennies
g. 1 dime and 8 pennies
h. 8 dimes and 2 pennies
i. 6 dimes and 9 pennies
j. 7 dimes and 2 pennies
k. 9 dimes and 0 pennies
l. 2 dimes and 9 pennies

4. Copy the examples below. Write numbers in place of the question marks.

a. 21 = ? tens and ? one
b. 54 = ? tens and ? ones
c. 36 = ? tens and ? ones
d. 74 = ? tens and ? ones
e. 87 = ? tens and ? ones
f. 93 = ? tens and ? ones
g. 66 = ? tens and ? ones
h. 5 tens and 3 ones = ?

5. Copy the numbers below. Put the largest number first, then the next largest, and so on. Copy all the numbers down to the smallest number.

48 16 34 50 74 92 41 28 29 61

6. Copy these numbers from smallest to largest:

63 23 79 99 12 9 29 80 14 58

7. Tell or write the sums or remainders:

a. 15¢−9¢
b. 14¢−6¢
c. 17¢−8¢
d. 9¢+7¢
e. 4¢+8¢
f. 8¢+7¢
g. 13¢−8¢
h. 15¢−6¢
i. 14¢−5¢
j. 8¢+8¢
k. 6¢+9¢
l. 3¢+8¢

The Roman Way of Writing Numbers

A long time ago the Roman people used numbers that are different from ours. Now we do not use Roman numbers very much. Sometimes they are used to tell the chapter numbers in books. On page 28 of this book you read: Chapter 2. We could write it like this: Chapter II.

When you write Roman numbers, you use letters like I, V, X, L, and D. You can make all the Roman numbers below with only three letters. These three are: I, V, and X.

I = 1
V = 5
X = 10

I = 1
II = 1 + 1 = ?
III = 1 + 1 + 1 = ?
IV = 5 − 1 = ?
V = 5
VI = 5 + 1 = ?
VII = 5 + 1 + 1 = ?
VIII = 5 + 1 + 1 + 1 = ?
IX = 10 − 1 = ?
X = 10
XI = 10 + 1 = ?
XII = 10 + 1 + 1 = ?

1. How are the Roman numbers IV and VI alike? How are they different? Which one shows more than V? Which one shows less than V?

2. How are the Roman numbers IX and XI alike? How are they different? Which one shows more than X? Which one shows less than X?

For every I that comes after V or X, we add 1. For every I that comes before V or X, we subtract 1.

3. Write an addition fact for VI; for XI.

4. Write a subtraction fact for IV; for IX.

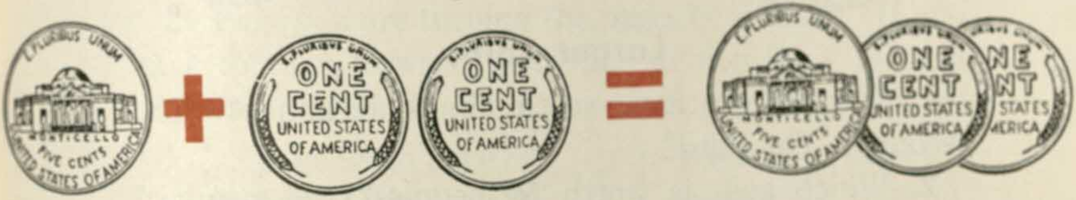
★5. Write 13 in Roman numbers.

Reading and Writing Roman Numbers

1. What Roman number can you use to show:

a. 1 penny? *b.* 1 nickel? *c.* 1 dime?

2. What does this picture of VII mean?



V + II = VII

5 + 2 = 7

3. Practice writing all the Roman numbers from I through XII. Then practice reading them.

4. Which numbers are easier to write and use, Roman numbers or the other kind of numbers we use? Why do you think Roman numbers are not used very much?

5. Copy. Write the Roman numbers:

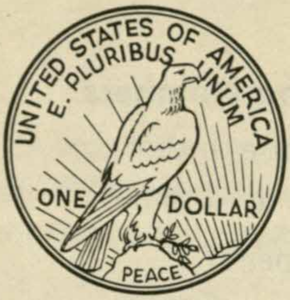
a. 5 = ?
b. 7 = ?
c. 1 = ?
d. 8 = ?
e. 2 = ?
f. 3 = ?
g. 9 = ?
h. 4 = ?
i. 6 = ?
j. 11 = ?
k. 10 = ?
l. 12 = ?

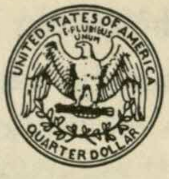
6. Copy. Write our numbers:

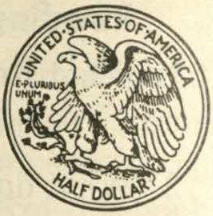
a. II = ?
b. XI = ?
c. IV = ?
d. III = ?
e. VII = ?
f. XII = ?
g. VIII = ?
h. VI = ?
i. IX = ?
j. I = ?
k. V = ?
l. X = ?

7. Some clock faces have Roman numbers. Where have you seen a clock like that? What is the largest Roman number on a clock face?

★**8.** In what other places have you seen Roman numbers? Ask other people where they have seen Roman numbers. Make a list of uses for Roman numbers.







Larger Coins

1. What is the name of the first coin above? The second? The third?

2. Which coin is worth 50 pennies? 25 pennies? 100 pennies?

★3. What is used in place of the largest coin in the picture?

4. Study these facts until you know all of them:

1 nickel = 5 pennies
1 dime = 10 pennies
1 dime = 2 nickels
1 quarter = 25 pennies
1 quarter = 5 nickels
1 half dollar = 50 pennies
1 half dollar = 10 nickels

1 half dollar = 5 dimes
1 half dollar = 2 quarters
1 dollar = 100 pennies
1 dollar = 20 nickels
1 dollar = 10 dimes
1 dollar = 4 quarters
1 dollar = 2 half dollars

Use of Two-Place Numbers

1. Make a list of things you can buy for:

a. a quarter *b.* a half dollar *c.* a dollar

2. What are some of the places you go where you see more than 20 people? More than 50 people?

3. How many days are there in this month?

★4. Make a list of places where you have been. List only the places that are more than 10 miles and less than 100 miles away. Tell how far away each place is.

Review of Unit 2

1. Say these numbers:

a. 49 73 84 32 18 19 98 54 40
b. 21 27 67 80 78 36 35 11 9

2. Play you are turning the pages of a book. If you have to turn forward, write F. If you have to turn backward, write B. Play you are turning pages from:

a. page 98 to page 89.
b. page 17 to page 20.
c. page 36 to page 18.
d. page 67 to page 47.
e. page 15 to page 51.
f. page 90 to page 60.
g. page 37 to page 80.
h. page 71 to page 17.

3. Write the numbers from 13 to 93, counting by tens.

4. Write the numbers from 96 to 6, counting backwards by tens.

5. Mary has 6 dimes and 3 pennies. How much money does she have? Write the answer in cents.

6. Copy. Write words in place of question marks.

a. The 2 in 23 means 2 _?_.
b. The 3 in 23 means 3 _?_.
c. The 5 in 56¢ means 5 _?_.
d. The 6 in 56¢ means 6 _?_.

★7. Copy each row of numbers below. Then write the next five numbers after each row. The numbers you copy will tell you how to count in each row. The first one is done for you. After 19, 20, 21 the next five numbers are 22, 23, 24, 25, 26.

a. 19, 20, 21, 22, 23, 24, 25, 26.
b. 85, 87, 89
c. 76, 74, 72
d. 75, 70, 65

STATE INSTITUTE OF EDUCATION
Govt of West Bengal

UNIT 3 WORKING WITH ZERO

Zero Scores

The children are trying to hit the target. On the first turn they hit these numbers:

Jane hit the 4.
Joe hit the 5.
Mary hit the 2.
Ted hit the 9.
Jean hit the 1.
Dick hit the 3.

1. Then they moved the target farther away and tried again. They moved it too far, so the next time everyone missed the target. Each child's score on the second turn was 0. What does 0 mean?

2. What is the sum of each child's scores?

$$\begin{array}{r} 4 \\ +0 \\ \hline \end{array} \qquad \begin{array}{r} 5 \\ +0 \\ \hline \end{array} \qquad \begin{array}{r} 2 \\ +0 \\ \hline \end{array} \qquad \begin{array}{r} 9 \\ +0 \\ \hline \end{array} \qquad \begin{array}{r} 1 \\ +0 \\ \hline \end{array} \qquad \begin{array}{r} 3 \\ +0 \\ \hline \end{array}$$

3. When you add zero to a number, what is the sum?

$$\begin{array}{r} 1 \\ +0 \\ \hline 1 \end{array} \quad \begin{array}{r} 2 \\ +0 \\ \hline 2 \end{array} \quad \begin{array}{r} 3 \\ +0 \\ \hline 3 \end{array} \quad \begin{array}{r} 4 \\ +0 \\ \hline 4 \end{array} \quad \begin{array}{r} 5 \\ +0 \\ \hline 5 \end{array} \quad \begin{array}{r} 6 \\ +0 \\ \hline 6 \end{array} \quad \begin{array}{r} 7 \\ +0 \\ \hline 7 \end{array} \quad \begin{array}{r} 8 \\ +0 \\ \hline 8 \end{array} \quad \begin{array}{r} 9 \\ +0 \\ \hline 9 \end{array}$$

When we add zero to a number, the sum is the same number.

4. Play that the children missed the target the first time. They hit it the second time. Add their scores:

Jane	Joe	Mary	Ted	Jean	Dick
0	0	0	0	0	0
+4	+5	+2	+9	+1	+3

5. When you add another number to zero, what is the sum?

0	0	0	0	0	0	0	0	0
+1	+2	+3	+4	+5	+6	+7	+8	+9
1	2	3	4	5	6	7	8	9

When we add a number to zero, the sum is the same number.

6. Say the sums quickly:

a. $0 + 3 = ?$
b. $1 + 7 = ?$
c. $2 + 6 = ?$
d. $7 + 0 = ?$
e. $2 + 9 = ?$
f. $0 + 4 = ?$
g. $0 + 6 = ?$
h. $0 + 9 = ?$
i. $1 + 0 = ?$

Climb the Ladder

Start at the bottom of each ladder and go up. See how quickly you can climb. Say or write the answers:

7 + 7 = ?
6 + 5 = ?
9 + 6 = ?
6 + 7 = ?
1 + 9 = ?
9 + 7 = ?

6 + 6 = ?
8 + 2 = ?
7 + 9 = ?
9 + 3 = ?
3 + 8 = ?
6 + 9 = ?

10 − 5 = ?
12 − 8 = ?
13 − 9 = ?
16 − 7 = ?
14 − 8 = ?
15 − 7 = ?

16 − 8 = ?
11 − 7 = ?
15 − 8 = ?
12 − 5 = ?
11 − 9 = ?
12 − 7 = ?

Adding Zero in Columns

Jack is batting the ball. Every time a child catches the ball he gets a score of 1.

1. There have been 4 batters. For the first batter, Alice got the ball 5 times. For the second batter she did not catch it at all. For the third, she got the ball 3 times. For the fourth, she got it 4 times. How many times did Alice catch the ball all together?

$$\begin{array}{r l} 5 & \\ 0 & 5+0=5 \\ 3 & 5+3=8 \\ \underline{4} & 8+4=12 \\ 12 & \end{array}$$

The black numbers are those you **see** and **write.**
The **green** numbers are those you **think.**

2. Below are the scores of the other children. Copy the scores and find the **total** score for each. A **total** is the same as a sum. Alice's total was 12.

Mary	Tom	Carl	Jim	Betty	Ted	Joe	Dick
3	1	4	6	3	2	3	4
2	2	0	2	1	1	2	0
4	5	3	0	5	4	0	5
5	6	6	5	7	0	7	2

Subtracting All

Carl was in the hospital. The children in his room gave him flowers. They all wanted to give money for the flowers.

1. Sue had 4¢. She gave 3¢ for Carl's flowers. How much did she have left?

2. Alice had 8¢. She gave 7¢. How much did she have left?

3. Joe had 12¢. He gave 7¢. How much did he have left?

4. John had 6 pennies. He gave them all. How many did he have left? 6¢ − 6¢ = ?

5. Mary had a nickel. She gave it for Carl's flowers. How much did she have left? 5¢ − 5¢ = ?

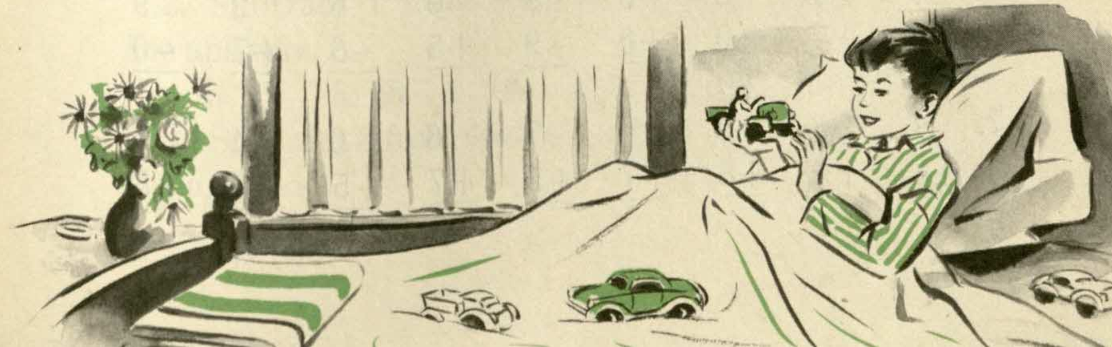
6. If a child gives all the money he has, how much does he have left?

7. You can see below the number facts for **taking away all.** Study them. When you take a number away from itself, what is the remainder?

$$\begin{array}{r} 1 \\ -1 \\ \hline 0 \end{array} \quad \begin{array}{r} 2 \\ -2 \\ \hline 0 \end{array} \quad \begin{array}{r} 3 \\ -3 \\ \hline 0 \end{array} \quad \begin{array}{r} 4 \\ -4 \\ \hline 0 \end{array} \quad \begin{array}{r} 5 \\ -5 \\ \hline 0 \end{array} \quad \begin{array}{r} 6 \\ -6 \\ \hline 0 \end{array} \quad \begin{array}{r} 7 \\ -7 \\ \hline 0 \end{array} \quad \begin{array}{r} 8 \\ -8 \\ \hline 0 \end{array} \quad \begin{array}{r} 9 \\ -9 \\ \hline 0 \end{array}$$

When we subtract all of a number, we have none left.

When a number is subtracted from itself, the remainder is zero.



It Is Easy to Subtract Zero

1. Alice had 6 pennies. Ann had 4 pennies. "Give me 1 of your pennies," said Ann. Alice did not want to give Ann the penny. She gave Ann none of her money. How much did Alice still have? How many pennies did Ann still have?

$$6¢ - 0¢ = ?¢ \qquad 4¢ + 0¢ = ?¢$$

2. If you give away only 1 penny, you will have less. When you give away **none,** do you have less?

3. When you get only 1 penny, you will have more. When you add **none,** do you have more?

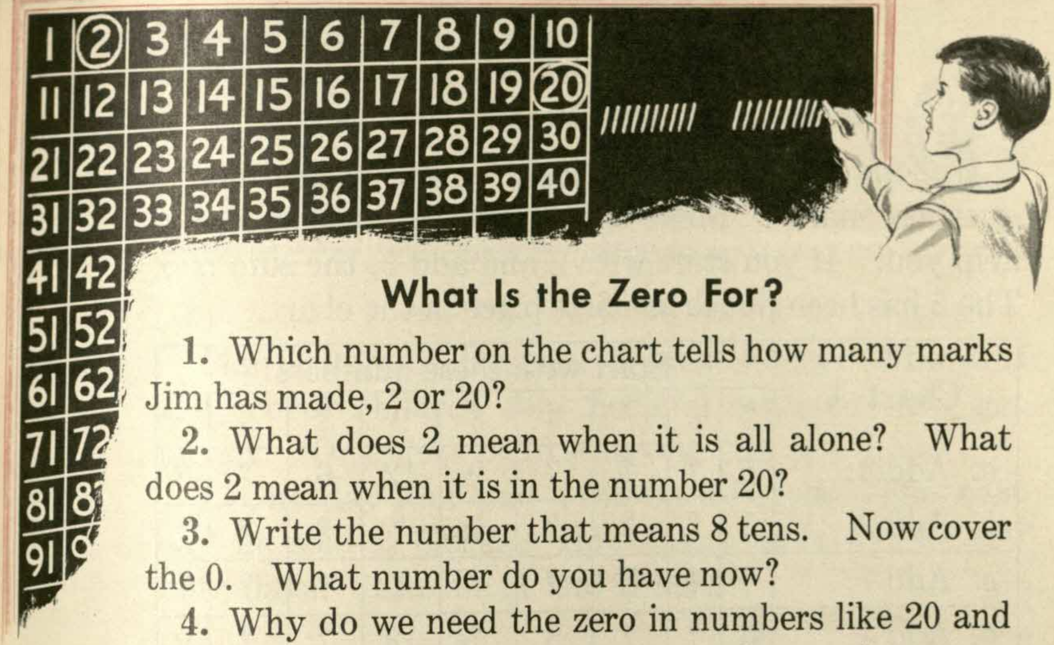
4. What does zero (0) mean? Does it make any difference in the answer when you add or subtract zero?

1	2	3	4	5	6	7	8	9
−0	−0	−0	−0	−0	−0	−0	−0	−0
1	2	3	4	5	6	7	8	9

> When we subtract zero from a number, the remainder is the same number.

Watch the signs. They tell you what to do.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
5.	5	0	8	9	6	6	7	9	6
	+0	+7	−1	+1	−5	+0	−5	−7	−0
6.	9	7	2	9	9	0	6	2	9
	+2	−7	−0	+0	−9	+5	−6	+7	−0
7.	1	3	2	0	7	6	0	4	9
	+8	+6	+8	+7	+5	+7	+5	+7	+5



What Is the Zero For?

1. Which number on the chart tells how many marks Jim has made, 2 or 20?

2. What does 2 mean when it is all alone? What does 2 mean when it is in the number 20?

3. Write the number that means 8 tens. Now cover the 0. What number do you have now?

4. Why do we need the zero in numbers like 20 and 80? What is it for? What would the number mean if we should forget to write the zero?

In the numbers 10, 20, 30, 40, 50, 60, 70, 80, and 90 the zero tells that there are no ones.

In the numbers 10, 20, 30, 40, 50, 60, 70, 80, and 90 the zero fills the ones' place. Then the other figure can show how many tens there are.

Time for Practice

1. Copy and add:

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
4	4	4	5	7	4	5	6	5
2	2	1	2	1	3	1	2	4
6	7	8	7	8	6	6	5	2

2. Subtract 7 from each of these numbers. Write the answers.

a. 10 *b.* 15 *c.* 16 *d.* 14 *e.* 11 *f.* 12 *g.* 13

3. Subtract 8 from each of the same numbers. Write the answers.

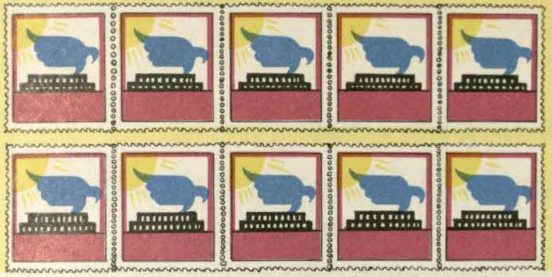
Instead of the Question Marks

1. Copy Chart A, but write the sums instead of the question marks. Some of the answers are given to help you. If you start with 2 and add 3, the sum is 5. The 5 has been put in the first place in the chart.

Chart A	Start with these numbers:								
	2	1	7	4	6	9	3	8	5
a. Add 3:	5	?	?	7	9	12	6	?	8
b. Add 9:	?	?	?	?	?	?	?	?	?
c. Add 7:	?	?	?	?	?	?	?	?	?
d. Add 4:	6	?	?	8	?	13	?	?	9
e. Add 8:	?	?	?	?	?	?	?	?	?
f. Add 6:	?	?	?	?	?	?	?	?	?
g. Add 5:	7	?	?	9	?	?	?	?	?

2. Copy Chart B, but write the remainders in place of the question marks. You do not need to fill in any place marked with an X. Some of the answers are given to help you.

Chart B	Start with these numbers:								
	12	14	11	15	13	10	8	16	9
a. Subtract 5:	7	9	6	X	8	5	?	X	?
b. Subtract 8:	?	?	?	?	?	?	?	?	?
c. Subtract 6:	?	?	?	?	?	?	?	X	?
d. Subtract 7:	?	?	?	?	?	?	?	?	?
e. Subtract 9:	?	?	?	?	?	?	X	?	?
f. Subtract 4:	?	X	?	X	?	?	?	X	?
g. Subtract 3:	?	X	?	X	X	?	?	X	?



Selling Hospital Seals

The Children's Hospital needed money. Many of the school children sold hospital seals to help get money. One block of 10 seals cost 10¢, or 1 dime.

1. One day Jim sold 7 blocks of seals. The next day he sold 2 blocks. How many seals did he sell both days? Explain **A** and **B** below:

A	B
7 tens	70 seals
+2 tens	+20 seals
9 tens = 90	90 seals

2. How many more seals did Jim sell the first day than he did the second day? Explain **C** and **D** below:

C	D
7 tens	70 seals
−2 tens	−20 seals
5 tens = 50	50 seals

3. How much money did Jim get for the seals he sold? Explain **E** and **F** below.

4. How much more money did Jim get on the first day than on the second day? Explain **G** and **H**.

E	F	G	H
7 dimes	70¢	7 dimes	70¢
+2 dimes	+20¢	−2 dimes	−20¢
9 dimes = 90¢	90¢	5 dimes = 50¢	50¢

Learning to Save

The boys and girls in the Hill Street School buy savings stamps. They buy them from the school bank. The stamps cost 10¢ (1 dime) each.

The numbers below tell how many 10¢ savings stamps some of the children bought. They had to pay 1 dime for each stamp.

Joe	4	Alice	1	Jack	6
Carl	2	Susan	7	Dick	3
John	9	Mary	8	Jane	5

1. How many dimes did Joe and Carl together pay for savings stamps? How many cents was this?

2. How many dimes did Alice and Mary pay? How many cents was this?

3. How many more dimes did John pay for stamps than Dick? Than Jane? Than Joe? Than Jack?

4. How many more cents did John pay for stamps than Dick? Than Jane? Than Joe? Than Jack?

5. What was the difference between the number of dimes John used and the number Susan used? What was the difference in cents?

★**6.** How many stamps did Alice, Jack, and Carl buy? How many cents did they pay?

★**7.** Make up some problems of your own about savings stamps at 10¢ each. Find the answers. Use the numbers below.

a	*b*	*c*	*d*
20+30=?	40+30=?	40+40=?	60+20=?
10+40=?	50+40=?	80−60=?	70−20=?
90−50=?	60−40=?	80−50=?	90−30=?

Review of Unit 3

Read each group of words in **Column A.** End it with one of the two answers next to it in **Column B.**

Column A	**Column B**
1. When we add 0 and another number	*a.* the answer is 0. *b.* the answer is the other number.
2. When we subtract a number from itself	*a.* the answer is 0. *b.* the answer is the other number.
3. When we subtract 0 from another number	*a.* the answer is 0. *b.* the answer is the other number.

4. What does 0 mean?

5. In *a* and *b* below tell the word that goes where the question mark is.

a. In the number 40, the 0 means there are no ?.

b. In 50¢, the 0 means there are no ?.

Say the answers:

	a	*b*	*c*	*d*
6.	4 tens +5 tens	2 dimes +5 dimes	9 tens −1 ten	7 dimes −3 dimes

Copy these examples. Write the answers.

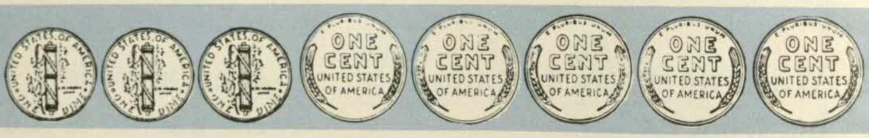
	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
7.	20 +70	40 +30	30 +50	10 +70	50 +30	70 +20	60 +10	80 +10
8.	60 −30	50 −10	70 −50	90 −60	80 −40	40 −20	80 −70	90 −30

UNIT 4 TWO-PLACE ADDITION AND SUBTRACTION

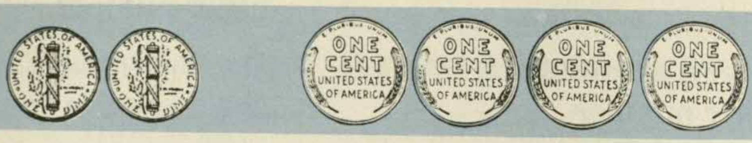
Buying a Present for Mother

Jane and Betty are going to buy a birthday present for their mother. Here is all the money they have.

Jane's money



Betty's money



1. How many pennies do both girls have? How many dimes do they have?

Addition

3 dimes 5 pennies	35¢
+2 dimes 4 pennies	+24¢
5 dimes 9 pennies	59¢

2. Jane can give more money than Betty can for the present. How much more? What is the difference?

3. How many more pennies does Jane have? How many more dimes does Jane have?

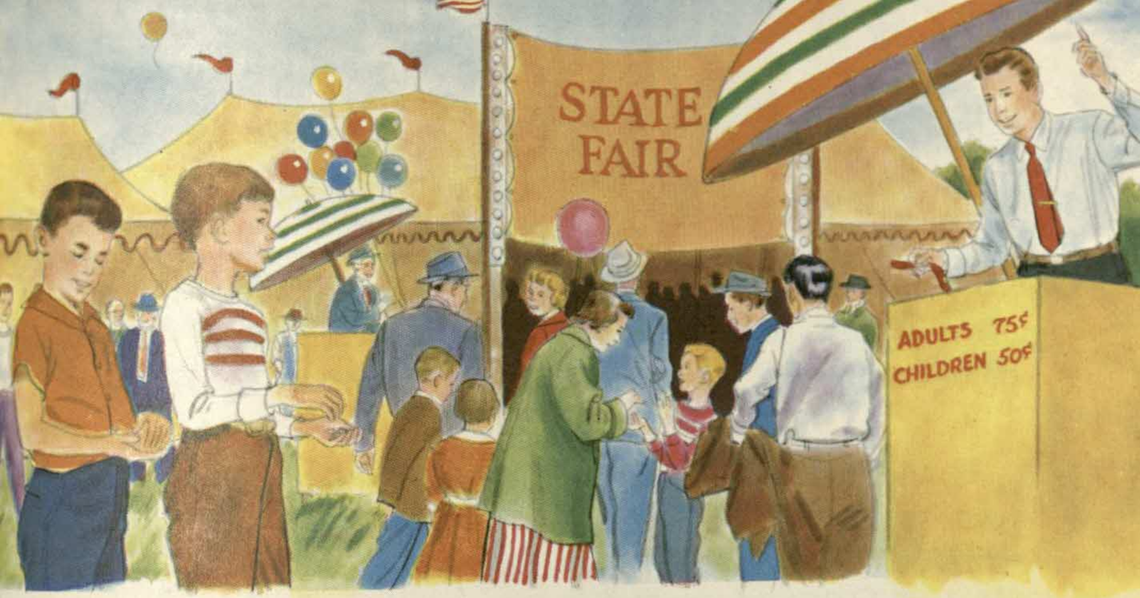
Subtraction

3 dimes 5 pennies	35¢
−2 dimes 4 pennies	−24¢
1 dime 1 penny	11¢

We add and subtract tens or dimes in the same way that we add and subtract ones or pennies.

4. Copy. Do what the signs tell you to do.

12¢	34¢	55¢	26¢	76¢	89¢	49¢	37¢
+75¢	+53¢	+24¢	+73¢	−15¢	−37¢	−28¢	−15¢



Money for the Fair

John has 60¢. Dick has 20¢. They want to go to the fair. The sign tells how much it costs to go to the fair.

1. How much does a child's ticket cost? How much does Dick have? **How much more does he need?**

2. What is the **difference** between the cost of a ticket and what Dick has? What is the **difference** between the cost of a ticket and what John has?

3. How much money does John have? If he buys a ticket, how much money will he **have left?**

★**4.** In which problems did you find a **difference?** In which problem did you find a **remainder?** What did you do to get all three answers?

★**5.** Make up problems for these examples. First ask a question about a difference. Then ask a question about a remainder.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
20	90	80	38	47	70	69	86
−10	−20	−60	−17	−24	−30	−27	−63

At the Fair

1. Joe and Tom went to the fair. Some children from their school got prizes. The boys counted 3 first prizes, no second prizes, and 7 third prizes. How many prizes did their school win?

2. Joe counted the names of 37 children he knew who had things at the fair. Tom found the names of 24 children he knew. How many more children did Joe know than Tom did?

3. The boys got hungry and bought something to eat. Cold drinks for both boys cost 20¢ and their sandwiches cost 36¢. What was the total cost?

4. Joe had only 11¢ left. He bought a horn for 3¢. Then how much money did he have?

Keep Your Skill

Copy and add.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	52	15	13	12	52	21	31	37
	43	72	36	46	33	51	32	41
2.	63	45	51	81	12	34	22	51
	15	54	15	16	87	63	47	38
3.	32	45	36	47	52	40	66	44
	21	43	13	12	42	20	32	34

Compare Savings

(Addition and subtraction of two-place numbers)

These children have been saving money. Here you see how much each one has saved.

Ann 38¢ Carl 12¢ Alice 42¢ Sally 65¢
Ted 31¢ Jane 34¢ Jack 57¢ Joe 23¢

1. How much have these pairs of children saved together?

a. Ann and Ted?
b. Sally and Joe?
c. Carl and Jane?
d. Alice and Jack?

2. Which child saved the most? Which child saved the least? What is the difference between the most and the least?

3. Which girl saved least? Which girl saved most? What was the difference?

4. Which boy saved most? Which boy saved least? What was the difference?

5. How many children saved more than Alice? How much more did each one save?

★**6.** Make up other problems of your own about the savings of these children.

Without Paper and Pencil

1. Take each number below. Play that you have that much money. Then tell how much you would have if you got 10¢ more.

a. 15¢
b. 31¢
c. 37¢
d. 46¢
e. 62¢
f. 22¢
g. 76¢
h. 58¢
i. 19¢
j. 13¢
k. 24¢
l. 27¢
m. 53¢
n. 48¢
o. 47¢
p. 69¢

2. Now tell how much you would have if you started with the same sums of money but lost 10¢.

When Do You Add and When Do You Subtract?

1. You are making a car, and you do not have enough wheels. You know how many wheels you have and how many you need all together. How can you find out how many more you need?

2. You know how many days of vacation there are in all and how many are gone. How do you find out how many vacation days are left?

3. You know how much money you have and how much you are going to be paid. How do you find out how much you will have after you are paid?

4. You know how much money you have and how much you will pay for something. How do you find how much you should have left?

5. If you know two prices for tablets, how do you find the difference in the prices?

★**6.** Use some of the practice examples below. Make up problems to go with each question above.

Time for Practice

Copy the examples below. The signs tell you what to do.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	7 +7	9 +9	8 +9	7 +8	4 +9	3 +9	5 +9
2.	10 −2	12 −4	11 −2	12 −3	14 −9	16 −9	18 −9

How Well Can You Work Problems?

(Problem Test 3)

1. Dick's father had 15 big dogs and 12 puppies. How many dogs did he have in all?

2. Dick got a letter in the mail from Tom. Tom wrote, "We have 17 dogs, but you have more than we have." How many more did Dick and his father have?

3. One day when Dick came home from school, he saw only 8 puppies. The others had been sold. How many puppies had been sold? (Look at Problem **1** to see how many puppies there were before.)

4. Dick had 39¢. He bought a ball for the dogs to play with. The ball cost 15¢. How much money did Dick still have?

5. Dick went to the store. He paid 24¢ for dog candy and 75¢ for other dog food. How much did he spend?

6. Dick had 45 dog candies in a pan. He gave one to each of the 15 big dogs. How many were left for the puppies?

7. Some of the children who lived near Dick had a pet parade. They had 3 cats, 4 rabbits, and 9 dogs in the parade. How many pets were in the parade?

8. Dick is 48 inches tall. The tallest dog he has is 36 inches tall. What is the difference?

Watch the Zeros

1. Study **A, B, C,** and **D.** These examples all have zeros in them. What is the zero used for in each example?

	A	B	C	D	E
24	2 tens 4 ones	78	80	84	78
+60	+6 tens 0 ones	−20	−30	−24	−72
84	8 tens 4 ones	58	50	60	6

2. Study **E.** 7 − 7 = 0. Why is there no zero in the answer for E?

Copy these examples. Write the answers.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
3.	68 +11	40 +37	15 +62	50 +42	30 +50	23 +66	14 +72	29 +40
4.	48 −28	27 −16	91 −60	69 −24	45 −21	93 −63	70 −20	56 −52

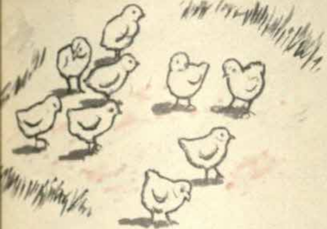
Do You Remember?

Do you remember the addition and subtraction families? Here is the family of facts for 2, 5, and 7:

2 + 5 = 7 5 + 2 = 7 7 − 2 = 5 7 − 5 = 2

Write the number fact families for these numbers:

a. 2, 4, 6
b. 3, 5, 8
c. 4, 5, 9
d. 8, 1, 9
e. 7, 8, 15
f. 9, 8, 17
g. 9, 7, 16
h. 8, 6, 14
i. 14, 9, 5
j. 12, 8, 4
k. 10, 3, 7
l. 13, 5, 8



On the Farm

1. Sally and Joe spent their vacation on their grandfather's farm. They went 82 miles by train and 16 miles by car. How far away from home did they go?

2. Joe had 27 baby chickens to care for. Sally took care of 22.

a. How many baby chickens did they care for together?

b. Joe took care of more than Sally did. How many more?

3. One week the children picked berries. Sally picked 28 boxes and Joe picked 21.

a. Sally picked more than Joe. How many boxes more?

b. How many boxes did they both pick?

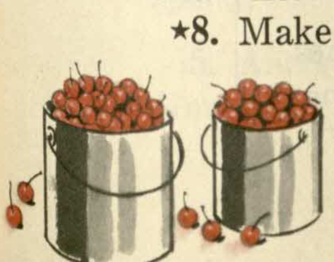
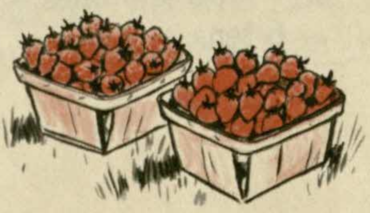
4. One morning Joe found 20 eggs. In the afternoon he found 13 more. How many eggs did he find that day?

5. On the farm there were 19 cows. Twelve of them were black and white. The others were brown. How many brown cows were there?

6. Joe said, "Last year we spent 31 days on the farm. This year we are going to be here 48 days." How much longer is that?

7. There were 15 pigs in a pen. Some of them got out. Eleven were left in the pen. How many got out?

★**8.** Make up problems of your own about the farm.

We Check to Make Sure

Sue wanted to buy a doll that cost 69¢. She had only 46¢. How much more money did she need?

Subtracting	
Cost of the doll	69¢
−Money Sue had	−46¢
Money Sue needed	23¢

Sue checked to see if her answer was right. She checked her subtraction by adding.

Checking	
Money Sue had	46¢
+Money Sue needed	+23¢
Cost of the doll	69¢

When we check subtraction by adding, we are using a number family.

69 − 46 = 23 46 + 23 = 69 69 − 23 = 46 23 + 46 = 69

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	63 20	78 41	67 30	72 12	94 10	41 11	49 18	79 54
2.	89 17	92 81	84 21	57 31	46 36	66 13	97 24	76 62

3. Check all your remainders in the above examples by adding. You do not need to write the numbers again if you add up.

$$\begin{array}{r} 87 \\ -24 \\ \hline 63 \end{array} \uparrow$$

3 ones + 4 ones = 7 ones
6 tens + 2 tens = 8 tens

Two-Place Column Addition

(With related problems)

The children helped their teacher count books and other things in their room.

Tom counted the reading books. There were 32 of one kind, 24 of a second kind, and 33 of a third kind. How many reading books were there?

32	Add the ones:
24	2 + 4 + 3 = 9
33	Add the tens:
89	3 + 2 + 3 = 8

1. Copy these examples and add down. Check by adding up.

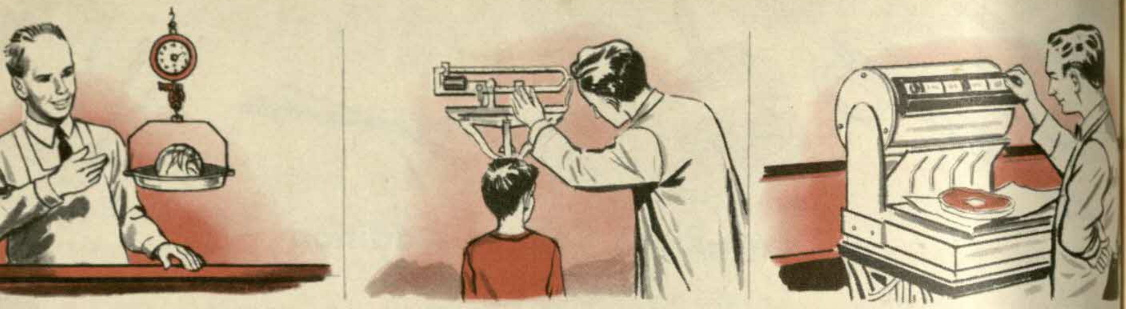
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
45	14	41	21	42	29	37	24
23	23	22	35	24	50	12	32
11	52	16	40	33	10	20	43

2. Mary counted 32 small pencils and 16 larger ones. How many of both sizes were there?

3. Betty counted 32 boxes of crayons. There were 44 children in the room. How many more boxes of crayons were needed?

4. In this school the children buy some of their own things. Mary bought these things: a tablet for 5¢, a pencil for 3¢, and a pen for 2¢. How much did she spend?

5. Ann's things cost her 27¢. Betty's cost her 17¢. How much more did Ann spend than Betty did?



Using Scales

1. What are scales for? Tell how each scale in the picture is different from the others.

2. Tell what you know about:

a. Weighing other things.

b. Other kinds of scales.

Review of Unit 4

Copy. Close your books. Write the answers.

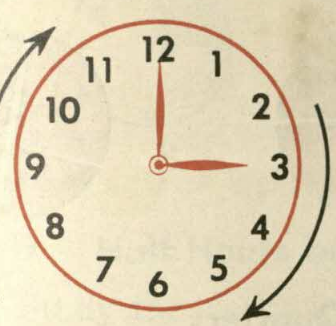
	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	62¢ +12¢	21¢ +44¢	42 +16	52 +17	14 +75	21 +76	33 +45
2.	58¢ −31¢	83¢ −21¢	38 −25	48 −16	49 −32	87 −76	97 −15
3.	49¢ +50¢	50¢ +20¢	40 +15	69 −30	70 −10	86 −85	63 −33

4. Check all your additions by adding up.

5. Check all your subtractions by adding up.

6. Copy these examples and add down. Check by adding up.

22	23	44	24	52	12	22	11
14	31	32	51	17	26	20	50
31	14	12	10	10	60	46	28



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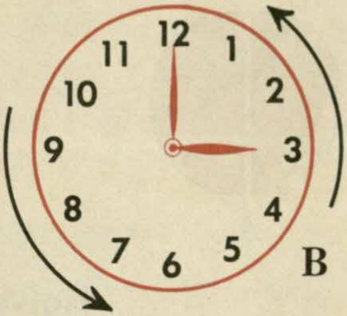


B

UNIT 5 TELLING TIME

Hours of the Day

1. Which way do the clock hands move? Which picture above has the arrows going the right way?

2. All these words tell about time. What does each word tell us about the time?

a. afternoon
b. morning
c. noon
d. night
e. midnight
f. yesterday
g. tomorrow

3. What were you doing yesterday at:

a. 8 o'clock in the morning?
b. 8 o'clock at night?
c. 12 o'clock noon?
d. 12 o'clock midnight?

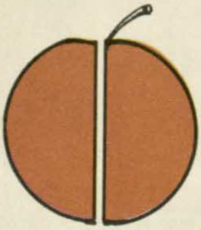
4. Think of what you can do in one hour. How far can you walk in one hour? How far can you ride a bicycle? How far can you ride in a car?

There are 24 hours in a day.
There are 12 hours between noon and midnight.
There are 12 hours between midnight and noon.

5. Jack comes to school at 9 o'clock. At noon he eats. How long is he in school before he eats?

★**6.** How many hours do you spend each day:

a. eating?
b. sleeping?
c. in school?



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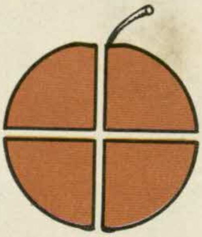

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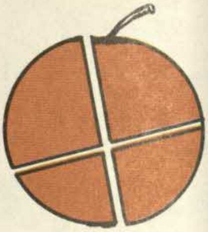


C

Halves and Quarters

When you cut an apple in **half,** you get two parts. When you cut an apple into **fourths,** or **quarters,** you get four parts.

1. Which apple in the picture has been cut into **halves?** Into **quarters?** Into **fourths?** Which apple does not show halves or fourths? Why not?

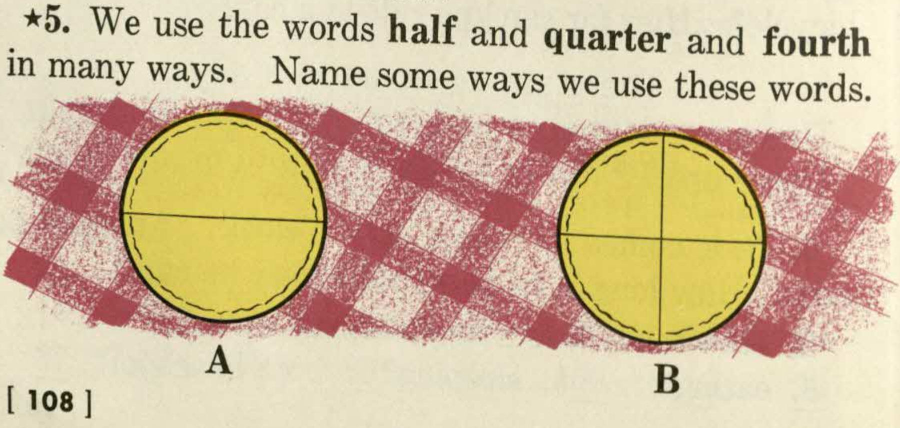
> The two **halves** of a thing must be equal. The four **quarters** of a thing must also be equal.

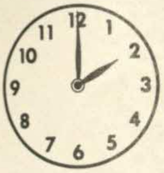
2. Look at the pictures of the pies. Which one is divided into halves? Fourths? Quarters?

3. Draw a square. Draw a line to cut the square into two equal parts. Draw another line to cut the square into four equal parts.

4. What coin has "half" in its name? What coin is worth one fourth of a dollar?

★5. We use the words **half** and **quarter** and **fourth** in many ways. Name some ways we use these words.





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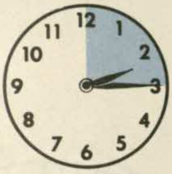

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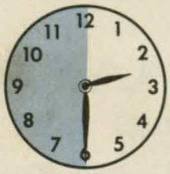

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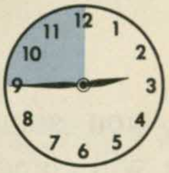

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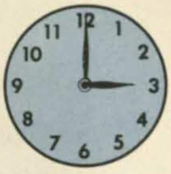


E

Half Hours and Quarter Hours

1. Study the clock pictures at the top of this page. Then answer these questions:

a. Which picture shows a blue half and a white half? It shows **half past 2.**

b. Two pictures show a blue quarter. Picture **B** shows a **quarter past 2.**

c. Which other picture shows a blue quarter? It shows a **quarter to 3.**

d. Which picture shows the earliest time?

e. Which picture shows the latest time?

2. When the clock shows half past two, where is the hour hand? Where is the long hand?

3. When the clock shows a quarter to three, is the hour hand closer to 2 or to 3? Where is the long hand?

4. When the clock shows a quarter past 2, is the hour hand closer to 2 or to 3? Where is the long hand?

5. Which time is earlier:

a. a quarter past 3 or a quarter to 3?

b. a quarter past 3 or a quarter past 4?

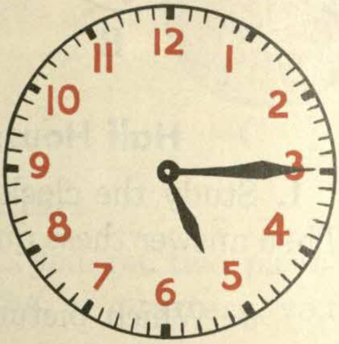
c. half past 5 or half past 4?

d. half past 7 or a quarter to 8?

e. half past 2 or a quarter past 4?

Just a Minute

1. Do you sometimes say that you will come in "just a minute"? What do you mean?



2. Look at the clock picture. Look at the marks around the side of the clock face. They are **minute marks.** How many minute marks are there all the way around the clock face?

3. The long hand on a clock is called a **minute hand.** It moves from one minute mark to the next in just 1 minute. How many minutes does it take for the minute hand to move all the way around the clock?

4. Watch the clock on the wall in your room. Watch how long it takes the minute hand to move from one minute mark to the next. That is how long a minute is. On some clocks the minute hand "jumps" from one minute mark to the next. Does the clock in your room "jump"?

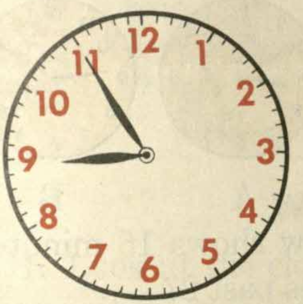
5. Have your teacher time you. See how many words you can read in a minute. See how many times you can write your name in a minute.

6. How many minutes is it between the numbers 1 and 2 on the clock? Between 4 and 5? Are all the numbers on a clock face 5 minutes apart?

7. Count the minutes with a clock to show:

1 hour=60 minutes
1 half hour=30 minutes
1 quarter hour=15 minutes

Early or Late?



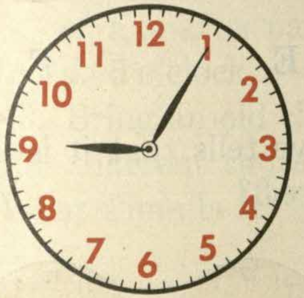
A

One morning Betty's mother said,

"Hurry, or you will be late! School starts at 9 o'clock!"

1. Betty hurried to school. When she got there, the clock looked like Clock **A.** Was Betty early or late? How do you know?

2. How many minutes before 9 did Betty get to school? What time did she get there?



B

3. Jack did not hurry as fast as Betty did. When he got to school, the clock looked like Clock **B.** Was he early or late? How many minutes after 9 did Jack get to school?

4. What does it mean to be:

a. On time?
b. Early?
c. Late?

⋆**5.** Why should you try to get to school on time? What can you do so that you will be on time?

⋆**6.** Which is better—to be early or late?

⋆**7.** Which is better—to be early or on time?

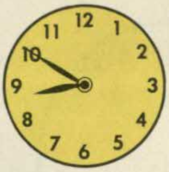
⋆**8.** Which is better—to be on time or late?

⋆**9.** Some people say, "Better late than never." What does that mean? Do you think it is better to be late than never come at all? When? When not?

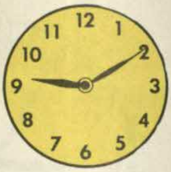
⋆**10.** Most times it is all right to be early. Sometimes it is not good. When? Why?

Tell the Time

1. Which clock shows 10 minutes to 9? Which clock shows 10 minutes after 9? Which time is earlier?

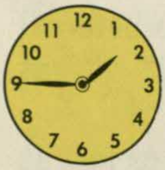


A



B

2. Which clock in the row below shows 15 minutes to 2? Which one shows 15 minutes past 2?



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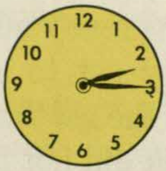

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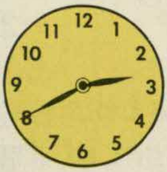

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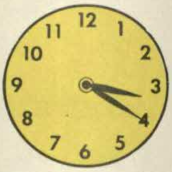
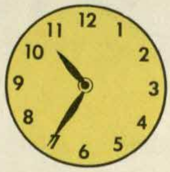


F

3. Which clock in the row above tells that it is 20 minutes after 3? 20 minutes before 3?

4. At the right, which clock shows 25 minutes past 11? 25 minutes before 11? Which time is later?



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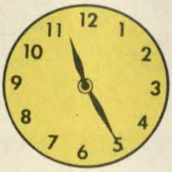
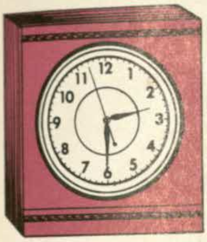
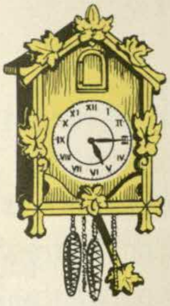


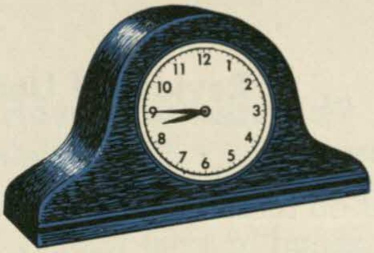
H

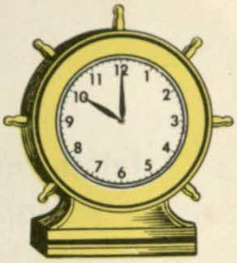
5. Tell what number the minute hand points to when the time is:

a. 5 minutes to 4.
b. 5 minutes past 4.
c. 10 minutes past 4.
d. 10 minutes to 4.
e. 15 minutes to 4.
f. 15 minutes past 4.
g. 20 minutes before 4.
h. 20 minutes after 4.
i. 25 minutes after 4.
j. 25 minutes before 4.









What Time Is It?

1. Look at the clocks at the top of the page. What time is it by each clock?

2. Draw clocks of your own. Draw them so they show these times:

a. half past 3.
b. a quarter to 12.
c. a quarter past 10.
d. 5 o'clock.
e. 7 o'clock.
f. a quarter to 11.
g. a quarter past 8.
h. half past 4.

★**3.** Bring an old clock to school. Turn the hands to show different times of day. Ask the other children, "What Time Is It?"

Compare Ages

Alice has 2 sisters and 3 brothers. Here are the ages of all the children in her family:

Alice	8	Jim	11	Jack	16
Bill	9	Sue	13	Rose	17

1. How much younger is Alice than Bill? Than Jim? Than Sue? Than Jack? Than Rose?

2. How much younger is Bill than Jim? Than Sue? Than Jack? Than Rose?

3. Father is 39 years old. How much older is he than the oldest boy? Than the oldest girl?

4. Mother is 38 years old. How much older is she than the oldest boy? Than the oldest girl?

Review of Unit 5

Tell the answers:

1. What do these words mean?

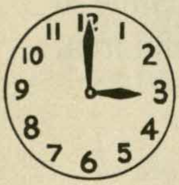
a. morning
b. noon
c. night
d. midnight
e. hour
f. minutes
g. day
h. half
i. quarter
j. fourth
k. early
l. late
m. older
n. younger

Write your answers:

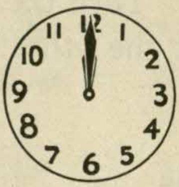
2. Which hand on a clock tells the hour?

3. Which hand on a clock tells the minutes?

4. What time is it by each of these clocks?



A



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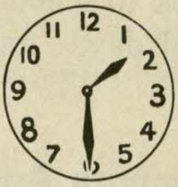

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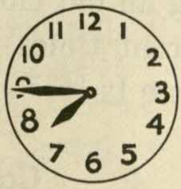

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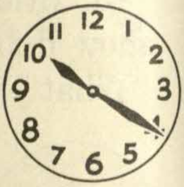


E

5. Draw small clock faces. Show the times given below:

a. 5 minutes to 11
b. 5 minutes after 4
c. 10 minutes past 5
d. 20 minutes before 10
e. 25 minutes after 3
f. 10 minutes to 7
g. 25 minutes to 1
h. 20 minutes past 12

6. How many minutes are there:

a. In an hour?
b. In a half-hour?
c. In a quarter-hour?

How Much Have You Learned?

(Chapter Test 3)

1. Say the numbers.

a. Begin with 7. Count forward by tens to 97.
b. Begin with 8. Count forward by twos to 50.
c. Begin with 97. Count backward by tens to 7.
d. Begin with 95. Count backward by fives to 5.

2. Try to say the sums without writing.

a	*b*	*c*	*d*	*e*	*f*
1	1	4	1	1	2
5	6	1	2	3	2
3	1	4	1	3	1
			4	1	2

Copy. Write the sums. Check by adding up.

	a	*b*	*c*	*d*	*e*	*f*
3.	5	4	3	2	1	3
	2	3	6	4	2	2
	5	6	2	2	4	1
				3	3	4
4.	67¢	23¢	56¢	12	64	49
	+12¢	+55¢	+30¢	+67	+34	+20
5.	41	42	12	15	12	42
	20	24	63	60	24	32
	28	32	24	13	63	22

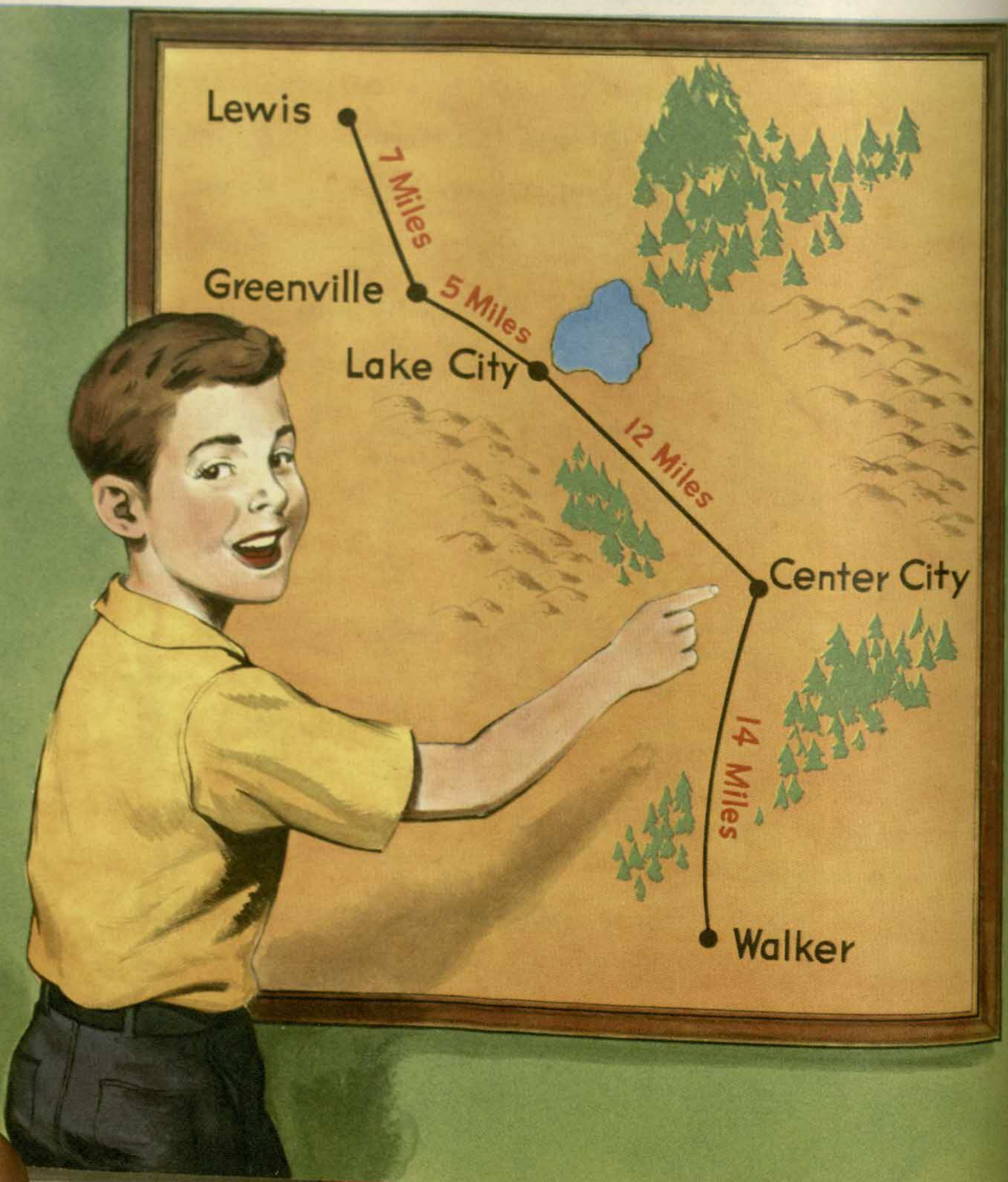
Copy. Subtract. Check by adding up.

6.	89¢	99¢	63¢	78	87	25
	−23¢	−73¢	−32¢	−27	−36	−14
7.	79¢	68¢	90¢	47	87	95
	−49¢	−28¢	−40¢	−20	−81	−50

CHAPTER

4

Changing in Addition and Subtraction



UNIT 1 ADDING AND SUBTRACTING BY ENDINGS

How Many Miles?

Jim is showing you his home town. What is it?

1. Does Jim live nearer to Lake City or to Walker? How much nearer?

2. How far is it from Lake City to Lewis? From Lake City to Walker?

3. How much farther is it from Jim's home to Lake City than it is from Lewis to Greenville?

4. It is 13 miles around the lake at Lake City. How much farther is it around the lake than from Lake City to Greenville?

5. Which is farther, from Lewis to Greenville or from Walker to Center City? What is the difference?

6. Jim's family went in their car from home to Lake City. Then they rode around the lake (13 miles). Then they rode home. How far did they ride?

★7. The road is new from Lake City to Greenville and from Center City to Walker. Which piece of new road is longer? How much longer?

★8. How far is it from Jim's home to Lake City? How far is it from Lake City to Greenville? How far is it from Jim's home to Greenville?

★9. How far is it all the way from Lewis to Walker?

★10. Make up other questions to ask. Start your questions with "How many miles."

How Does It End?

(Adding and subtracting by endings)

Copy these examples and write the answers. The first fact in each row will help you with all the other examples in the row.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	5 +4	15 +4	25 +4	35 +4	45 +4	55 +4	65 +4	75 +4	85 +4
2.	6 +3	16 +3	36 +3	46 +3	56 +3	66 +3	76 +3	86 +3	96 +3
3.	7 +2	27 +2	37 +2	47 +2	57 +2	67 +2	77 +2	87 +2	97 +2
4.	7 −3	27 −3	37 −3	47 −3	57 −3	67 −3	77 −3	87 −3	97 −3
5.	9 −2	19 −2	29 −2	39 −2	49 −2	59 −2	69 −2	79 −2	89 −2

6. How does the sum end when:
- *a.* you add 4 to a number that ends in 5? (Row 1)
- *b.* you add 3 to a number that ends in 6? (Row 2)
- *c.* you add 2 to a number that ends in 7? (Row 3)

7. How does the remainder end when:
- *a.* you subtract 3 from a number that ends in 7?
- *b.* you subtract 2 from a number that ends in 9?

★**8.** Make up and work addition examples. Make them all so that 7 is added to a number that ends in 1.

★**9.** Make up and work subtraction examples. Make them all so that 3 is subtracted from a number that ends in 8.

At a Party

1. The picture shows Jane's birthday party. How many girls were there? How many boys were there? How many girls and boys were at the party? Tell two ways to get the last answer.

2. The girls and the boys played a game. The girls' score was 13. The boys' score was 9. What was the difference in the scores?

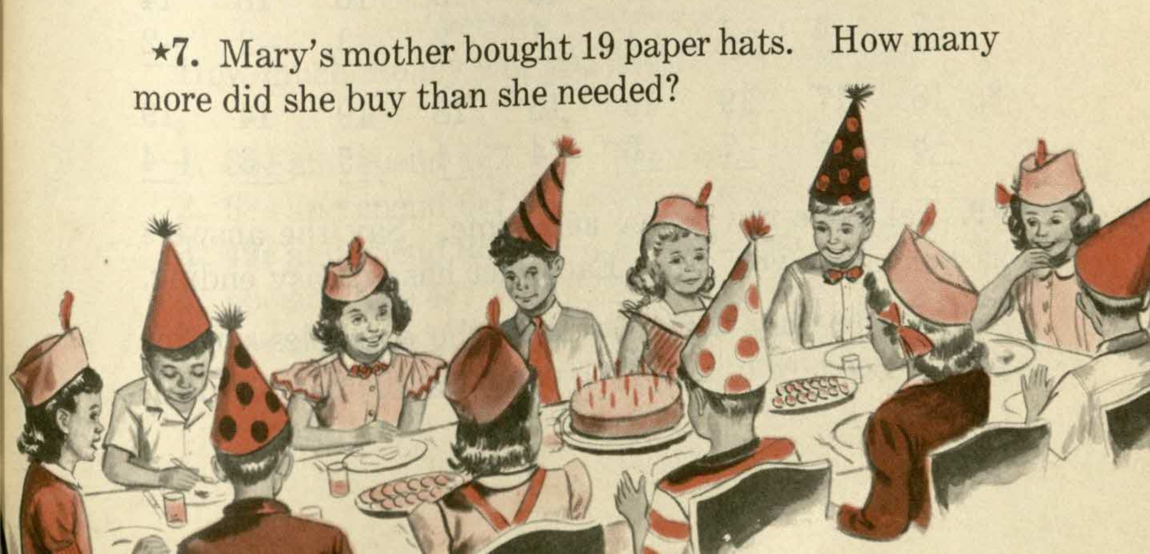
3. Jane's mother made 19 sandwiches. The children ate all but 5. How many did they use?

4. Place cards for the party cost 5¢. Prizes cost 44¢. How much did the place cards and the prizes cost together?

5. Helen bought a birthday present that cost 20¢. She gave the clerk 25¢. How much change should she get?

6. Jane's ninth birthday was on May 4. Jack said his ninth birthday would be on May 28. Jane was how many days older than Jack?

★7. Mary's mother bought 19 paper hats. How many more did she buy than she needed?



Write and Tell

Copy and add. Add the endings. The sums will be in the "teens."

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	16 +1	12 +2	17 +1	12 +1	18 +1	13 +2	14 +2	12 +3	11 +8
2.	15 +2	16 +2	13 +3	17 +2	14 +1	13 +1	15 +1	12 +4	11 +7
3.	16 +3	15 +3	14 +3	13 +4	12 +5	11 +2	12 +6	13 +5	10 +7
4.	15 +4	11 +3	14 +5	14 +4	11 +4	13 +6	12 +7	11 +6	10 +8

Copy and subtract. Subtract the endings.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
5.	19 −8	15 −3	16 −2	15 −2	19 −1	13 −1	18 −1	17 −2	17 −1
6.	17 −7	18 −5	18 −6	13 −2	17 −5	17 −4	17 −3	18 −3	19 −3
7.	18 −7	16 −4	16 −1	14 −1	15 −1	19 −2	16 −3	18 −2	14 −2
8.	18 −8	17 −6	19 −7	19 −6	15 −4	18 −4	19 −5	14 −3	19 −4

★**9.** Take one row above at a time. Say the answers as quickly as you can. Each fact has an easy ending.

★**10.** Write only the answers to the examples on this page. See how quickly you can write them.

Add by Endings in Column Addition

Copy the columns below and add. Check by adding up. You will need to add by endings. Look at the first example.

First you add: $\begin{array}{r} 8 \\ +3 \\ \hline 11 \end{array}$ Then you add: $\begin{array}{r} 11 \\ +8 \\ \hline 19 \end{array}$

When you add 11 + 8, you add the ending: 1 + 8 = 9.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
1.	8 3 8	2 5 3	9 4 3	5 5 3	6 5 4	5 5 4	9 8 2	6 3 3	9 1 5	9 7 2
2.	8 3 5	3 8 6	7 3 7	7 4 4	9 3 3	9 3 6	8 7 3	9 7 3	5 5 1	9 7 1
3.	9 4 4	3 8 8	4 8 4	8 5 4	4 9 5	7 7 4	7 4 6	5 5 5	8 4 1	6 9 1

Without Paper and Pencil

(Subtracting money numbers)

How much money will you have left if you have:

	a	*b*
1.	35¢ and spend 4¢?	57¢ and spend 6¢?
2.	68¢ and spend 6¢?	28¢ and spend 5¢?
3.	49¢ and spend 9¢?	37¢ and spend 3¢?
4.	56¢ and lose 4¢?	16¢ and lose 3¢?
5.	94¢ and lose 2¢?	39¢ and lose 8¢?
6.	86¢ and lose 2¢?	77¢ and lose 2¢?

About How Many Marbles?

(Rounding off)

The boys in the picture ended their game. Then they counted all their marbles. These numbers tell how many marbles each boy had:

Tom	49	Jim	53	Fred	37
Dick	72	Don	68	Bob	81

1. Would you say that Tom had about 40 marbles or about 50 marbles? Why?

When we say that Tom had about 50 marbles, we use the **round number** 50.

▶ We use **round numbers** (numbers ending in zero) to tell **about how many.** We call this **rounding off.**

2. What round numbers tell about how many marbles each of the other boys had?

3. Tell, in a round number, how many days there are in a month.

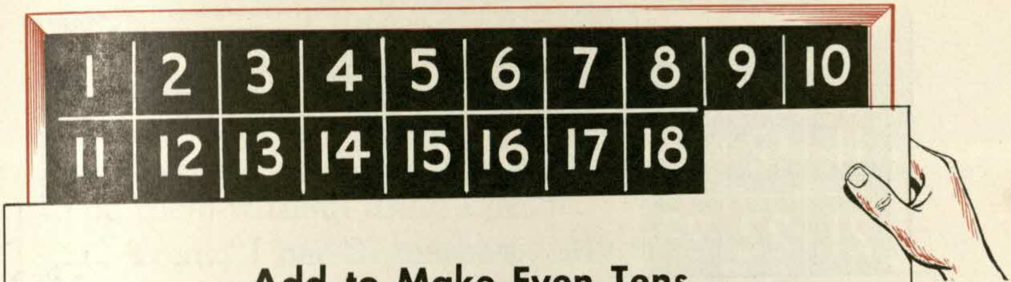
4. Change these prices to round numbers:

a. 29¢ *b.* 19¢ *c.* 48¢ *d.* 88¢ *e.* 47¢ *f.* 22¢ *g.* 41¢

5. Which of these numbers are **even tens?** Which are not **even tens?**

40 22 50 72 90 80 13 10

6. Round off the numbers that are not even tens. Make them even tens.



Add to Make Even Tens

1. If a number ends in 8, how many do you add to make an even ten? The chart above will help you to find the answer. Copy these examples and fill in the missing numbers.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
8	18	28	38	48	58	68	78
+?	+?	+?	+?	+?	+?	+?	+?
10	20	30	40	50	60	70	80

2. What must you add to make an even ten if the number ends in 4? In 5? In 1? In 7? In 3?

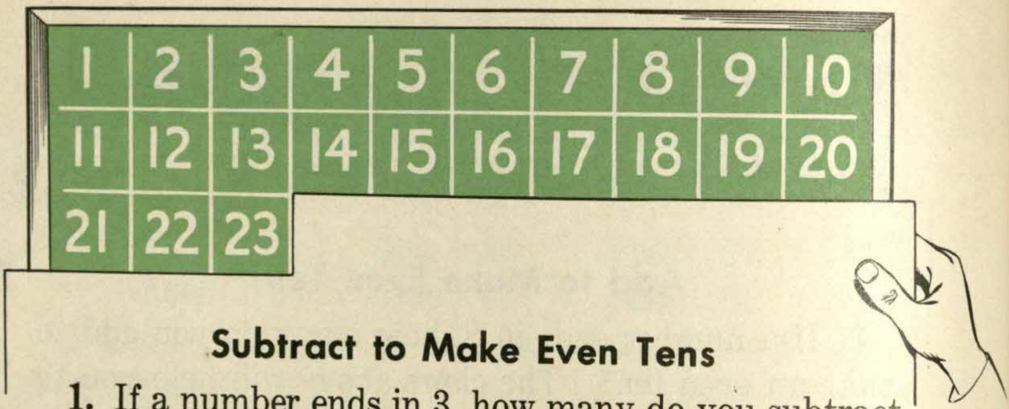
3. Copy these examples. Fill in the missing numbers to make even tens.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1	5	3	18	12	19	24	37	46
+?	+?	+?	+?	+?	+?	+?	+?	+?
10	10	10	20	20	20	30	40	50

★4. Look at the sums in Example 3 above. How many **ones** are in each sum? Why? Are there more tens in the sum than in the top number?

★5. Copy and add.

84	35	46	57	68	79	23	81	12
+6	+5	+4	+3	+2	+1	+7	+9	+8



Subtract to Make Even Tens

1. If a number ends in 3, how many do you subtract to show an even ten? Tell what you would do in the picture at the top of the page.

2. How many do you need to subtract to make even tens? Copy these examples. Fill in the missing numbers.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
15	24	37	49	52	61	76	88	93
−?	−?	−?	−?	−?	−?	−?	−?	−?
10	20	30	40	50	60	70	80	90

3. Copy these examples. Subtract.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
11	25	38	43	79	67	56	82	94
−1	−5	−8	−3	−9	−7	−6	−2	−4

When we subtract all the ones, we have no ones in the remainder.

4. Say the remainders quickly.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
25	74	87	33	19	62	41	58	96
−5	−4	−7	−3	−9	−2	−1	−8	−6

Children's Problems

(Addition and subtraction of two-place numbers)

Here are some problems that other boys and girls have made. Work them as quickly as you can. Try to do them without using a pencil.

1. Tom: "I had 27 marbles. My mother bought me 20 more. How many marbles did I have then?"

2. Alice: "In our room the boys sold 30 tickets and the girls sold 20 tickets. How many tickets were sold in all? How many more tickets did the boys sell than the girls?"

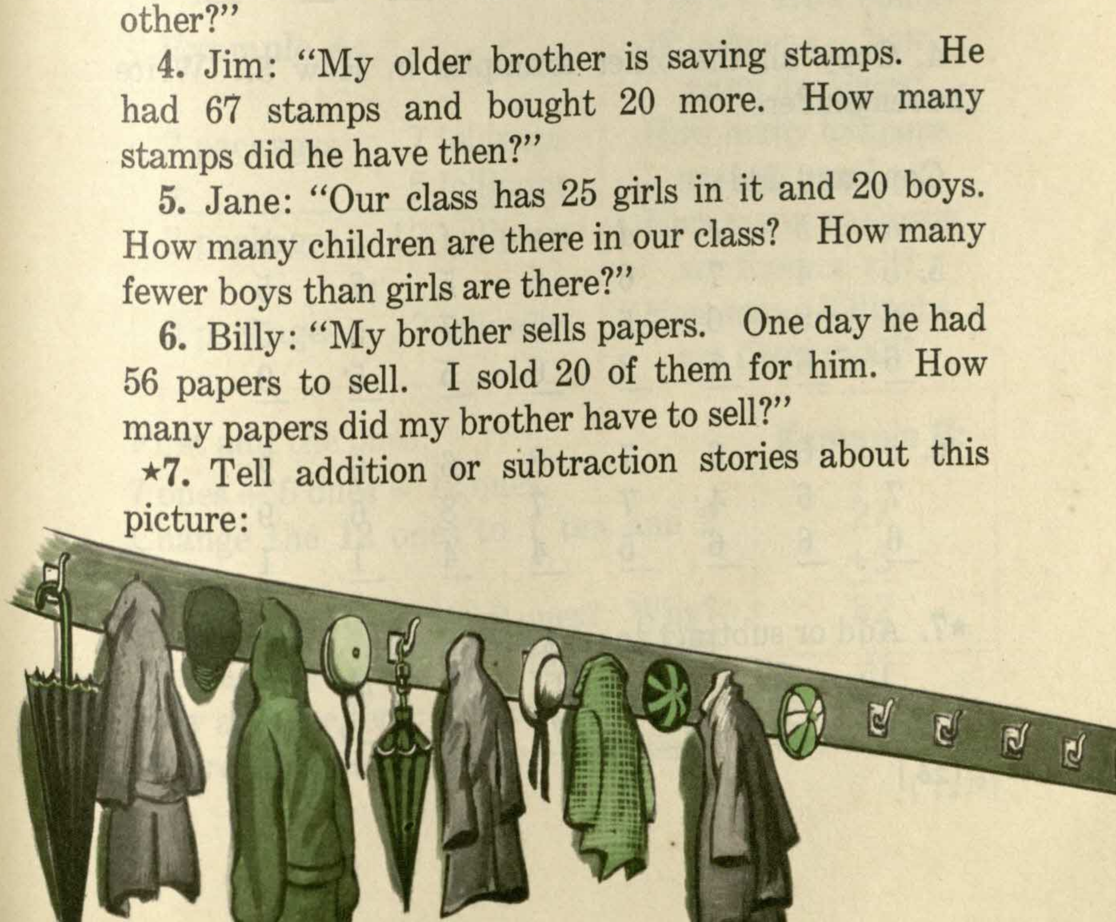
3. Dick: "One of the books I got for my birthday has 58 pages in it. Another one has 31 pages in it. How many pages are there in both books together? How many more pages are there in one book than in the other?"

4. Jim: "My older brother is saving stamps. He had 67 stamps and bought 20 more. How many stamps did he have then?"

5. Jane: "Our class has 25 girls in it and 20 boys. How many children are there in our class? How many fewer boys than girls are there?"

6. Billy: "My brother sells papers. One day he had 56 papers to sell. I sold 20 of them for him. How many papers did my brother have to sell?"

★7. Tell addition or subtraction stories about this picture:



Review of Unit 1

1. Copy the examples that end with the same number fact in the ones' place. Write the sums.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
11	54	37	71	21	45	91	81
+7	+1	+1	+6	+7	+3	+7	+7

2. Copy all the other examples in Row 1. Write the sums.

3. Copy all the examples that end with the same number fact in the ones' place. Write the remainders.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
45	69	36	89	27	19	98	59
−3	−1	−6	−2	−2	−1	−5	−1

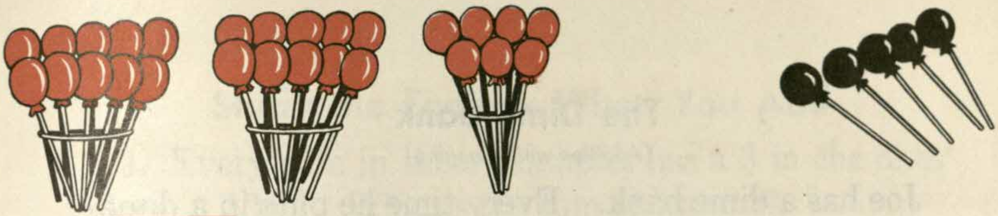
4. Copy all the other examples in Row 3. Write the remainders.

Copy and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
5.	5	4	7	6	5	5	8	5
	6	9	6	5	5	7	5	5
	6	6	5	8	6	5	5	9
6.	6	6	6	7	8	6	6	2
	7	6	4	7	7	8	6	9
	6	6	6	5	4	4	1	1

★7. Add or subtract to make even tens:

15	26	38	41	93	67	14	66
+?	+?	+?	+?	−?	−?	−?	−?



UNIT 2 CHANGING IN ADDITION

How Many Lollipops?

(Addition with changing)

1. How many red lollipops do you see in the picture? How many are in the first package? In the second package? In both? How many are in the third package?

2. How many black lollipops do you see? Play that you put them with the 7 red lollipops. Could you make another package of 10 red and black lollipops?

3. Answer the questions for Examples **A** and **B.**

Example A:

2 packages	7 lollipops
+	5 lollipops
2 packages	12 lollipops
or	
3 packages	2 lollipops

7 + 5 = How many?

12 lollipops = how many packages?

How many lollipops are left over?

How many packages are there in all?

How many lollipops are there in all?

Example B:

$$\begin{array}{r} {}^{\prime} \\ 27 \\ +5 \\ \hline 32 \end{array}$$

First add the ones:
7 ones + 5 ones = 12 ones
Change the 12 ones to 1 ten and 2 ones.
Where do we write the 2 ones? Why?
Where do we write the 1 ten? Why?
Now add the tens: 1 ten + 2 tens = 3 tens
Where do we write the three tens? Why?

The Dime Bank

(Addition with changing)

Joe has a dime bank. Every time he puts in a dime, the date changes. He saves his dimes and puts one in his bank every day.

1. Joe had 1 dime and 6 pennies. He found 4 more pennies. He can put the dime in his bank today. Can he put a dime in his bank tomorrow?

2. Examples **A** and **B** show what Joe did with his pennies. Study the examples and explain them.

Example A:

$$\begin{array}{ll} \text{1 dime} & \text{6 pennies} \\ + & \text{4 pennies} \\ \hline \text{1 dime} & \text{10 pennies} \\ & \text{or} \\ \text{2 dimes} & \end{array}$$

6 pennies + 4 pennies = how many pennies?

What should Joe do with the 10 pennies?

After he changes the 10 pennies for a dime, how many dimes will he have?

Example B:

$$\begin{array}{r} \overset{1}{1}6\text{¢} \\ 4\text{¢} \\ \hline 20\text{¢} \end{array}$$

What does the 0 mean in the sum of Example **B**?

What does the small "1" over the dimes' column mean?

▶ When the sum of the ones' column is 10 or more, we change 10 ones to 1 ten. Then we add that ten to the other tens.

3. Copy these examples and add.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
15	13	27	21	38¢	44¢	52¢	79¢
+5	+7	+3	+9	+2¢	+6¢	+8¢	+1¢

Study the Endings When You Add

1. Every sum in these examples has a 3 in the ones' place. Why? What is the sum of 5 and 8?

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
15	35	55	75	45	25	85	65
+8	+8	+8	+8	+8	+8	+8	+8
23	43	63	83	53	33	93	73

2. How does each sum in this row end? Why? What is the sum of 6 and 8?

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
16	26	36	66	56	46	76	86
+8	+8	+8	+8	+8	+8	+8	+8

3. When you add 8 to a number ending in 4, how does the sum end? What is the sum of 8 and 4?

4. When you add 9 to a number ending in 8, how does the sum end? Why?

5. Look at each example in **1** and **2** above. When we added, did we get more tens? How many more tens? Why?

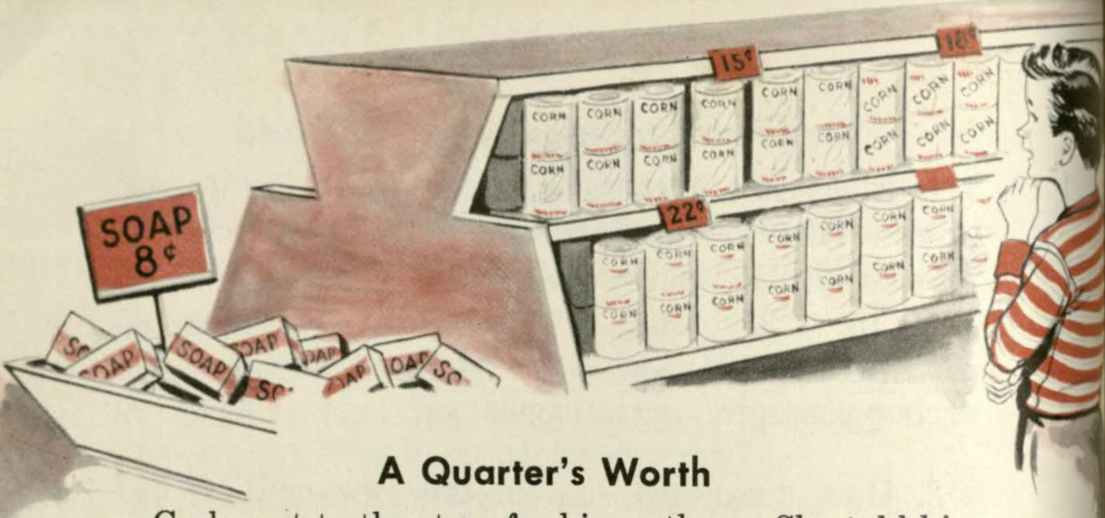
How Well Do You Add?

1. Write the sums. To every number below add 8. Then add 7. Then add 9. Then add 5.

27 16 39 51 35 24 19 32 48 33

2. Copy these examples and add:

12	13	14	25	26	27	38	59	24
+9	+8	+6	+8	+5	+3	+4	+2	+9



A Quarter's Worth

Carl went to the store for his mother. She told him to buy a can of corn and some soap. She gave him a quarter and a nickel. She said, "You may have the nickel if you can buy the corn and soap with the quarter or less."

1. How much will the corn and soap cost if Carl buys:

a. A 15¢ can of corn?
b. An 18¢ can of corn?
c. A 22¢ can of corn?

2. Which can of corn must Carl buy if he is to keep the nickel? Why?

3. Play you had to buy two things for a quarter or less. One thing costs 6¢. The other thing costs 21¢ or 19¢ or 20¢. Which one would you buy? Why? Will you spend the whole quarter?

4. You have to buy one thing for 9¢. You have only a quarter in all. What is the most you can spend for anything else?

★5. Make up some story problems about buying two things for a quarter.

★6. Make up some problems about buying two things for a half-dollar.

Red and Yellow Leaves

1. The 36 children in one class looked for pretty leaves. Only 21 of them found any. How many did not find any?

2. The next day after school 16 of the 36 children went on a trip to the woods. How many did not go?

3. The girls found pretty leaves and put them in baskets. They had 22 in one basket, 23 in another basket, and 44 in the third basket. How many leaves did they have in all three baskets?

4. The boys tried to find leaves that were all red or all yellow. They found 33 red and 46 yellow ones. How many did they find all together?

5. The girls put their prettiest leaves in books. They had 89 leaves in all. They had 34 left after picking out the prettiest ones. How many leaves did they put in the books?

6. One day, Ann picked up 7 red leaves. Bess picked up 12. Bess had how many more leaves than Ann?

Time for Practice

Write your work.

1. Add 8 to each number:

a. 22 *b.* 33 *c.* 65 *d.* 54 *e.* 26 *f.* 37 *g.* 48 *h.* 19

2. Add 9 to each number:

a. 30 *b.* 41 *c.* 52 *d.* 27 *e.* 45 *f.* 68 *g.* 79 *h.* 23

3. Write in columns and add:

a. 6+7+4+8
b. 9+3+6+7
c. 8+4+6+9
d. 8+5+4+2
e. 9+7+0+5
f. 9+4+7+4
g. 9+6+7+8
h. 5+6+4+7
i. 3+8+9+6

New Column Addition

Copy these examples in columns and add from top to bottom. Check by adding up. You will use adding by endings many times as you check.

1. 4+3+9 2+7+4 3+4+7 1+1+9
2. 5+4+8 7+1+9 1+6+6 1+8+3
3. 2+5+5 3+5+5 4+5+8 5+4+9
4. 1+5+8 4+5+9 2+6+9 3+5+6
5. 2+1+9 2+5+6 3+6+5 4+2+8
6. 1+5+9 2+7+7 2+6+5 3+5+7
7. 2+7+8 3+5+8 4+2+9 5+3+7
8. 2+7+9 2+7+5 3+1+9 4+4+6
9. 2+3+7 2+5+8 3+5+9 4+3+7
10. 2+5+9 3+2+8 4+4+7 5+2+8
11. 2+2+8 5+4+7 6+3+8 7+2+8
12. 2+3+9 2+6+6 3+2+9 5+4+6
13. 2+4+6 2+6+7 3+6+6 4+4+8
14. 2+4+7 5+1+9 3+3+7 3+4+5

Which Number?

Write only the answers:

1. Which is larger: *a.* 23 or 32? *b.* 47 or 44? *c.* 32 or 36? *d.* 65 or 56? *e.* 99 or 97? *f.* 45 or 54?

2. Which of these numbers has: *a.* Most tens? *b.* Fewest tens? *c.* Most ones? *d.* Fewest ones?

18 30 37 24 42 38 29 25 36

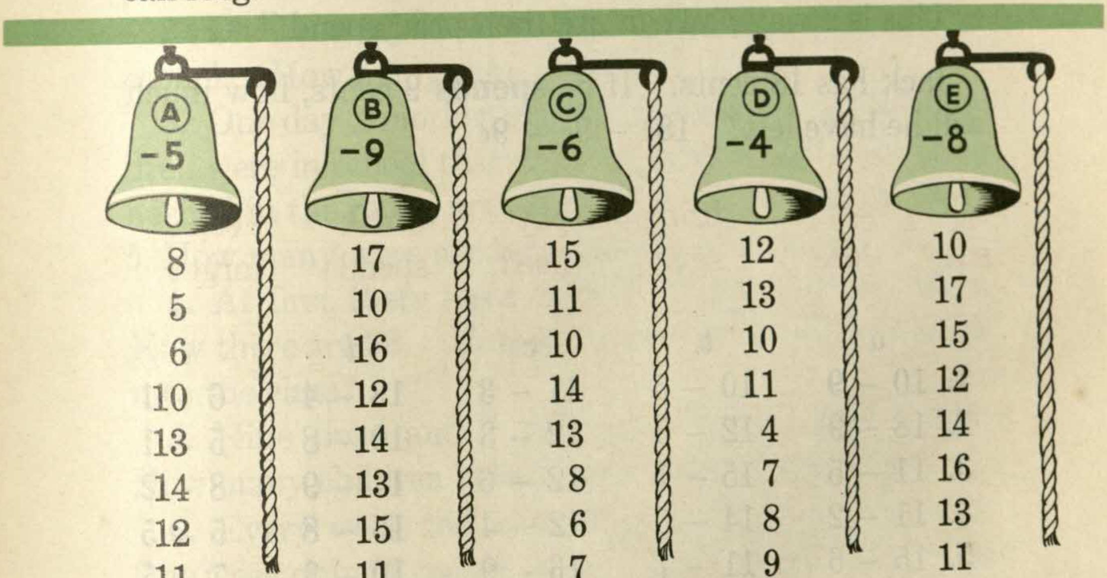
3. Which numbers in this row are round numbers?

28 32 10 52 69 20 91 50 47 70 83

4. Look at the numbers in the row above. Round off those that are not round numbers.

Ring the Bells

1. Ring the bell. Subtract the number on the bell from every number under it. See how many bells you can ring.



8	17	15	12	10
5	10	11	13	17
6	16	10	10	15
10	12	14	11	12
13	14	13	4	14
14	13	8	7	16
12	15	6	8	13
11	11	7	9	11

2. Ring bells again. Subtract these numbers:

Bell **A** – 3
Bell **B** – 7
Bell **C** – 2
Bell **D** – 1

Keep Your Skill

Copy these examples and subtract. Check your work by adding.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	60	72	84	33	78	57	88	61	74
	50	42	54	30	60	50	46	60	70
2.	82	75	76	89	83	47	69	78	54
	40	40	60	60	43	37	53	17	33

Make Your Own Problems

Make up problems. Use the words and numbers below. Write your questions and ask them so that other children can give the answers.

This is a way you can use the word "spend."

Jack has 18 cents. If he **spends** 9 cents, how much will he have left? 18¢ – 9¢ = 9¢

sell
eat
want
lose
bring
save
pay
need
break
spend
keep
forget

	a	*b*	*c*	*d*	*e*
1.	10 – 9	10 – 5	11 – 3	13 – 4	6 – 1
2.	18 – 9	12 – 5	12 – 3	10 – 8	5 – 1
3.	11 – 5	15 – 7	12 – 6	14 – 9	8 – 2
4.	11 – 2	14 – 5	12 – 4	15 – 8	5 – 5
5.	15 – 6	11 – 7	16 – 9	10 – 3	7 – 5
6.	13 – 6	10 – 4	17 – 8	13 – 8	4 – 1
7.	17 – 9	14 – 6	10 – 6	11 – 4	9 – 9
8.	12 – 9	14 – 7	11 – 6	15 – 9	8 – 5

Say the answers quickly:

	a	*b*	*c*	*d*	*e*
9.	12 – 7	11 – 8	13 – 7	12 – 8	6 – 5
10.	14 – 8	13 – 9	16 – 7	16 – 8	7 – 3

★**11.** Write some subtraction problems of your own. Change papers with someone. Find the answers to his questions.

★**12.** See if you can make up addition problems in which you use some of the same words you used for subtraction problems.

How Well Can You Work Problems?

(Problem Test 4)

1. In Miss Smith's room there are 22 boys and 16 girls. How many children are there in the room?

2. On Monday 4 of the 38 children were not in school. How many were in school?

3. One day a mother came to the room. All 38 children were in school that day. *a.* How many seats were needed in the room, not counting a seat for the teacher? *b.* How many were needed, counting the teacher, too?

4. At first there were only 27 children in the class. Now there are 38. How many new children have come into the class?

5. Nine boys and 7 girls have not missed a day. How many children have been in school every day?

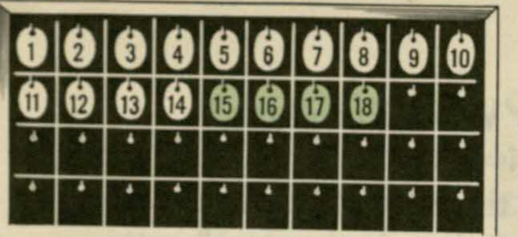
6. Every week the children get newspapers to read. One week only 32 papers came. Each of the 38 children was to have a paper. How many more were needed?

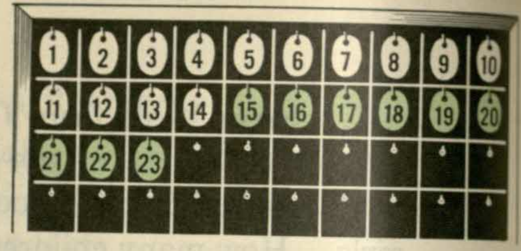
7. There are 48 children in the room next to Miss Smith's. What is the difference between the number of children in this room and in Miss Smith's room?

8. One day Miss Smith counted 20 children from her room playing in one group. She counted 18 children from her room playing in another group. Did all the children in her room come to school that day? How do you know?

★9. On Friday 3 of the 38 pupils in Miss Smith's room were not in school. Four other pupils went home for their lunch. How many pupils in Miss Smith's room ate their lunch in school on Friday?

★10. Lunch time begins at noon and ends at 10 minutes to 1. How long is the lunch time?





Bridging

1. In the pictures we add the "greens" to the "whites." When we do this:

a. Which picture shows the "greens" going into a new row?

b. Which picture shows a sum in the "next ten"?

2. Write the addition that goes with each picture.

a. In which one did you change 10 ones to 1 ten?

b. In which one did your sum have 1 more ten?

▶ When we add a number and get a sum in the next ten, we call it **bridging.**

Addition and Subtraction Practice

If you can get the answers without using pencil and paper, write just the answers. If not, write your work.

	a	*b*	*c*	*d*
1.	8+8+7+6	8+8+4+9	7+7+7+5	8+9+6+7
2.	7+5+9+8	6+3+7+5	6+5+8+6	7+4+8+5
3.	6+4+8+9	3+8+2+9	3+9+1+8	4+7+4+8
4.	4+8+8+5	5+8+6+7	5+9+7+7	7+3+6+8

Write the answers quickly without copying the examples:

	a	*b*	*c*	*d*	*e*	*f*	*g*
5.	10−3	6−4	10−4	11−3	12−4	10−6	12−3
6.	10−7	7−3	11−6	10−8	12−5	11−7	13−6

Review of Unit 2

Copy these examples and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	15	22	34	41	53	68	74	87	40
	4	6	4	7	5	1	2	2	8
2.	25	12	31	44	58	63	77	89	16
	5	8	9	6	2	7	3	1	4
3.	25	17	63	28	27	38	46	58	26
	6	5	8	6	4	7	9	8	7

4. In which row above is the sum of ones' column:
a. less than 10? *b*. more than 10? *c*. exactly 10?

5. In two of the rows, the figure in the tens' place of the sum is larger than the number of tens in the top number. Why?

Copy and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
6.	11	23	65	55	76	34	56	78
	9	7	7	8	6	6	8	9
7.	88	44	79	35	46	26	49	83
	7	6	1	9	9	7	9	7
8.	18	26	37	69	60	44	92	88
	3	9	8	6	8	7	7	8

Copy and add. Check by adding up.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
9.	1	2	1	2	3	1	2	3
	6	7	7	4	4	8	5	3
	9	4	8	8	9	8	7	9

UNIT 3 CHANGING AND BRIDGING IN SUBTRACTION

Tom Pays What He Owes

(Subtraction with changing)

Tom owed Joe 8¢. He said, "I can not pay you now. I have 2 dimes but no pennies."

Tom's mother said, "I will change a dime for you. Then you can pay Joe the 8¢."

1. Look at the picture. Does it show Tom's money before or after his mother changed a dime for him? What did Tom get for his dime?

2. Cover the 8 pennies Tom paid to Joe. How much money did Tom have left? 20¢ − 8¢ = ?

3. Below are 3 ways you can write your work. Tell what each one means. Which way do you like best?

Example A

$$\begin{array}{rr} \text{2 dimes 0 pennies} = & \text{1 dime 10 pennies} \\ \underline{-\qquad\quad \text{8 pennies}} = & \text{8 pennies} \\ \hline & \text{1 dime 2 pennies} = 12¢ \end{array}$$

We cannot subtract 8 pennies from 0 pennies. We take 1 dime and change it to 10 pennies. Then we have 1 dime left.

Now we can subtract 8 pennies from 10 pennies. 10 pennies − 8 pennies = 2 pennies. We write a 2 in the pennies' column.

There are no dimes to take away from the 1 dime. So we write a 1 in the dimes' column.

Example B

$$\begin{array}{r} \overset{1\ 10}{20}¢ \\ -8¢ \\ \hline 12¢ \end{array}$$

Example C

$$\begin{array}{r} 20¢ \\ -8¢ \\ \hline 12¢ \end{array}$$

When there are no pennies to subtract from, we first change 1 dime to 10 pennies. Then we subtract.

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
4.	10¢	20¢	30¢	40¢	50¢	60¢	70¢	80¢	90¢
	−6¢	−6¢	−6¢	−6¢	−6¢	−6¢	−6¢	−6¢	−6¢
5.	10¢	20¢	30¢	40¢	50¢	60¢	70¢	80¢	90¢
	−5¢	−5¢	−5¢	−5¢	−5¢	−5¢	−5¢	−5¢	−5¢

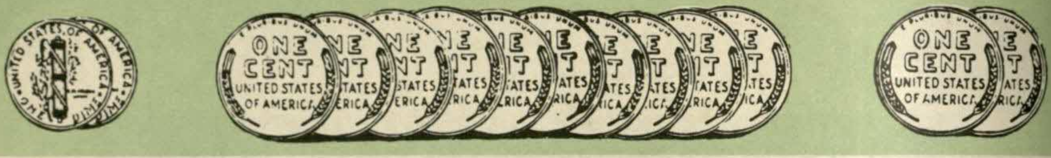
★**6.** Act out some of the subtraction examples given above. Use play pennies and dimes.

Do You Need to Break a Dime?

Sometimes we do not have enough pennies to pay for something we buy. Then we may pay with a dime and get change. We say that we "break" a dime to do this.

Do you need to break a dime if:

1. you have 2 dimes and have to pay 9¢?
2. you have 3 dimes and have to pay 6¢?
3. you have 1 dime and 6 pennies and have to pay 5¢?
4. you have 2 dimes and 4 pennies and have to pay 7¢?
5. you have 3 dimes and 3 pennies and have to pay 3¢?
6. you have 2 dimes and 2 pennies and have to pay 10¢?
7. you have 1 dime and have to pay 10¢?
8. you have 5 dimes and 6 pennies and have to pay 6¢?
9. you have 5 dimes and 6 pennies and have to pay 7¢?
10. you have 1 dime and 4 pennies and have to pay 6¢?
11. you have 3 dimes and 1 penny and have to pay 8¢?



Joe Changes a Dime

"What can I do?" asked Joe. "I have 3 dimes and 2 pennies. How can I take out 9¢ to buy a whistle?"

1. Joe's father helped him change his money. The picture shows Joe's money after it was changed. Which coins did he have to start with? How did he get the other coins in the picture?

2. Cover the 9 pennies Joe wanted to use. What coins are left? How much money is left?

3. Below you see 3 ways to write what Joe did. Which one do you like best? Why? Use the one that helps you most.

Example A

$$\begin{array}{ll} \text{3 dimes 2 pennies} & = \text{2 dimes 12 pennies} \\ -\quad\text{9 pennies} & = \quad\quad\quad\text{9 pennies} \\ \hline & \quad\text{2 dimes 3 pennies} = 23\text{¢} \end{array}$$

We cannot subtract 9 pennies from 2 pennies. We take 1 dime and change it to 10 pennies. Then we have 2 dimes left.

Example B

$$\begin{array}{r} \overset{2}{\cancel{3}}\overset{12}{\cancel{2}}\text{¢} \\ -9\text{¢} \\ \hline 23\text{¢} \end{array}$$

We add the 10 pennies we got for the dime to the 2 pennies we had.

$$10 + 2 = 12$$

We subtract 9 pennies from 12 pennies. 12 pennies − 9 pennies = 3 pennies. We write a 3 in the pennies' column.

Example C

$$\begin{array}{r} 32\text{¢} \\ -9\text{¢} \\ \hline 23\text{¢} \end{array}$$

No dimes are taken from the 2 dimes. So we write a 2 in the dimes' column.

4. Copy these examples and subtract. Remember to change a dime when there are not enough pennies.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
62¢	55¢	23¢	34¢	36¢	53¢	42¢	22¢	44¢	31¢
−8¢	−8¢	−7¢	−6¢	−8¢	−8¢	−9¢	−7¢	−7¢	−7¢

> When there are not enough pennies to subtract from, change 1 dime for 10 pennies.

5. Here are more subtraction examples. Sometimes you will need to change a dime and sometimes not.

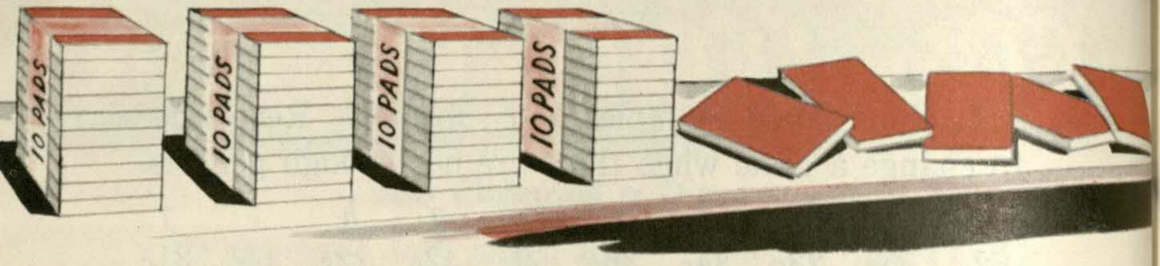
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
28¢	39¢	41¢	76¢	67¢	56¢	29¢	84¢	32¢	40¢
9¢	4¢	8¢	7¢	8¢	8¢	6¢	8¢	8¢	1¢

More Adding by Endings

Copy these examples and add. Here the larger number is at the bottom. The sum is the same whether the larger number is at the top or the bottom. Be sure to copy the ones under the ones. Why?

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	5	8	3	9	7	4	6	2	1
	24	41	85	60	52	73	33	96	37
2.	9	7	6	8	4	3	5	2	1
	41	23	64	32	76	57	75	88	49
3.	2	4	6	9	9	8	8	7	5
	89	78	57	75	39	69	27	49	38

***4.** Check your subtraction in Exercises **4** and **5** at the top of this page by adding.

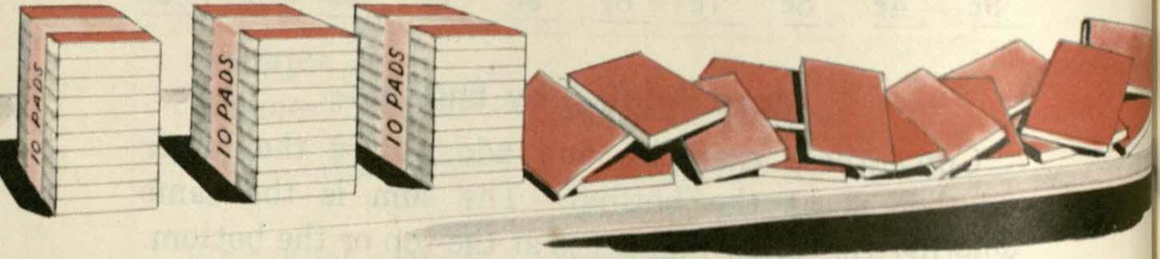


The Clerk Changes a Ten

(Subtraction with changing)

The picture at the top of the page shows a table in a store. Jack came into the store to buy 7 paper pads.

1. Could the clerk sell 7 pads without breaking one of the packages? How many packages did he have to break? After one package was opened, this is how the pads looked:



2. Can the clerk sell Jack 7 pads now? If he sells 7 of the 15 pads at the right, how many will be left? How many whole packages will be left? How many pads in all will be left?

★3. Act out the story. Use paper pads, sticks, or other things.

4. Here are two ways to write the subtraction. How are they alike? How are they different?

A	B
45	4 tens 5 ones
−7	− 7 ones

5. Below are three ways to write the subtraction work. Which ways show how we change 1 ten to 10 ones? Which ways are quicker to write? Which way do you like best? Why?

$$\begin{array}{ll} \overset{3}{\cancel{4}}\text{ tens} & \overset{15}{\cancel{5}}\text{ ones} \\ & -7\text{ ones} \\ \hline 3\text{ tens} & 8\text{ ones} \\ \multicolumn{2}{c}{\textbf{A}} \end{array} \qquad \begin{array}{r} \overset{3}{\cancel{4}}\,\overset{15}{\cancel{5}} \\ -\ 7 \\ \hline 3\,8 \\ \textbf{B} \end{array} \qquad \begin{array}{r} 4\,5 \\ -\ 7 \\ \hline 3\,8 \\ \textbf{C} \end{array}$$

6. Why is the 4 crossed out and 3 put in its place? Why is the 5 crossed out and 15 put in its place?

When we do not have enough ones to subtract from, we change 1 ten to 10 ones. We add 10 ones to the number in ones' place. Then we subtract.

Copy these examples and subtract. Write your subtraction in the way that is easiest for you.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
7.	34 −9	52 −5	23 −8	64 −7	85 −7	93 −6	41 −4	35 −9	46 −8	57 −9
8.	23 −9	84 −8	31 −9	92 −8	44 −6	63 −7	45 −9	67 −8	56 −9	75 −7

What Is a Dozen?

When you buy a dozen eggs, you should get 12 eggs. When you buy a dozen rolls, you should get 12 rolls. Name some things that are sold by the dozen.

12 things = 1 dozen (doz.)

Add It Quickly

1. Add 10 to each number below. Say the sums without writing anything.

a. 23   *b.* 87   *c.* 48   *d.* 71   *e.* 35   *f.* 56   *g.* 12   *h.* 64

2. Now add 9 to each of the same numbers. Remember that, when we add 9, the sum is **1 less** than when we add 10.

3. Give the sums by pairs. Do the work in your head.

a. 26+10   *c.* 45+10   *e.* 36+10   *g.* 39+10   *i.* 54+10
26+ 9   45+ 9   36+ 9   39+ 9   54+ 9

b. 38+10   *d.* 67+10   *f.* 27+10   *h.* 43+10   *j.* 42+10
38+ 9   67+ 9   27+ 9   43+ 9   42+ 9

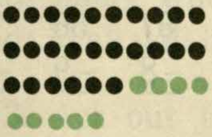
4. Adding 10 first also helps in adding 8. Get these sums without writing if you can.

a. 36+10   *b.* 27+10   *c.* 35+10   *d.* 43+10   *e.* 34+10
36+ 8   27+ 8   35+ 8   43+ 8   34+ 8

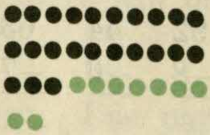
5. When you add 8, the sum is **how many less** than when you add 10?

★**6.** What do the pictures show you about adding 9?

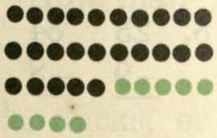
26+9



23+9

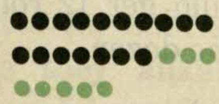


25+9

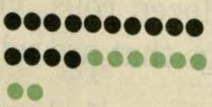


★**7.** What do the pictures show about adding 8?

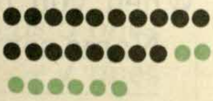
17+8



14+8



18+8



Subtract Quickly

1. Subtract 10 from each number below. Say the remainders without writing anything.

a. 23 *b.* 41 *c.* 56 *d.* 64 *e.* 78 *f.* 25 *g.* 82

2. Now subtract 9 from the same numbers. Remember that, when we subtract 9, the remainder is **1 more** than when we subtract 10.

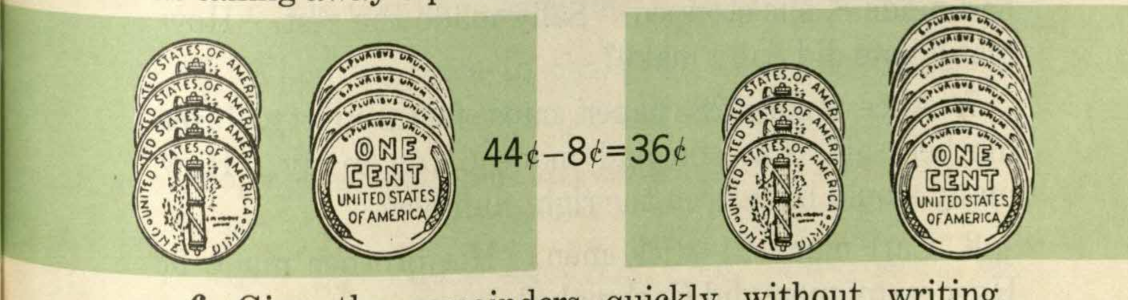
3. Give the answers by pairs. Do the work in your head.

a. 72 − 10 *b.* 35 − 10 *c.* 57 − 10 *d.* 24 − 10 *e.* 66 − 10
72 − 9 35 − 9 57 − 9 24 − 9 66 − 9

4. Subtracting 10 first also helps in subtracting 8. Get these remainders without writing if you can.

a. 42 − 10 *b.* 25 − 10 *c.* 63 − 10 *d.* 54 − 10 *e.* 36 − 10
42 − 8 25 − 8 63 − 8 54 − 8 36 − 8

5. Study the pictures. Tell how they show that taking away 1 dime and adding 2 pennies is the same as taking away 8 pennies.



6. Give the remainders quickly without writing. Take away 10 first if it helps you to do so.

a. 28 − 9 *c.* 44 − 8 *e.* 37 − 9
b. 35 − 8 *d.* 25 − 9 *f.* 72 − 8

7. Use the numbers in Exercise **6** again. Write the work as you would do it in changing a ten.

Fun Making Things

These children had fun making things.

1. Jane made a notebook with 24 sheets of paper. Later she put in 5 more sheets. How many sheets were there then?

2. Tom made 12 book ends for the library. Jack made 14. Carl made 10. How many book ends did the three boys make?

3. Betty made 16 signs for the toy show. Helen made 13. How many signs did both girls make?

4. Ted said he would make 24 paper flowers. The first day he made 6. How many did he still have to make?

5. Sue made 19 name cards for a teachers' party. Six more name cards were needed. Miss Smith said that she would make those herself. How many people will be at the party?

6. Mary started to make 27 paper hats. When she had made 8, she stopped. Sally made the rest. How many hats did Sally make?

7. Alice made 28 paper cups for a party. Her mother said that she had made 6 too many. How many would have been the right number?

8. Carl made 21 stick men. His brother made 9. How many more did Carl make?

When we put two or more groups together to make one larger group, we add.

When we break one group into two smaller groups, we subtract.

Review of Unit 3

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	19	28	38	69	38	87	57	26	49
	−5	−2	−4	−6	−5	−3	−5	−5	−7
2.	55	46	24	73	62	31	87	98	29
	−5	−6	−4	−3	−2	−1	−7	−8	−9
3.	20	40	50	30	60	70	90	80	20
	−5	−4	−7	−3	−9	−2	−1	−8	−6
4.	62	25	38	46	84	33	72	91	27
	−7	−6	−9	−7	−5	−4	−8	−7	−8

5. Each row above shows one kind of **subtracting by endings.** Tell about each row.

a. Does the number of tens change when you subtract?

b. Do you subtract from even tens?

c. Do you have even tens in the remainder?

★**6.** When we have to change a ten to subtract, do we always have fewer tens in the remainder?

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
7.	51	22	30	44	23	77	35	48	66
	−9	−8	−7	−6	−5	−4	−9	−8	−9
8.	21	52	40	33	74	25	47	36	98
	−8	−9	−6	−8	−7	−7	−7	−8	−5
9.	62	21	35	47	76	53	88	94	59
	−5	−2	−1	−8	−9	−7	−3	−4	−6

UNIT 4 CHANGING IN ADDITION AND SUBTRACTION OF TWO-PLACE NUMBERS

John Adds the Money He Earned

(Two-place addition with changing)

John earned 18¢ yesterday helping his mother. Today he earned 24¢ working in Mr. Smith's garden. How much money did John earn all together?

Study Examples **A, B,** and **C.** Do they all tell the same story? Explain each one.

Example A

1 dime 8 pennies
+2 dimes 4 pennies
3 dimes 12 pennies = 4 dimes 2 pennies = 42¢

8 pennies + 4 pennies = 12 pennies. Change 12 pennies to 1 dime and 2 pennies. Write 2 in the pennies' column and "carry" 1 dime to the top of the dimes' column.

1 dime + 1 dime + 2 dimes = 4 dimes. Write 4 in the dimes' column.

John earned a total of 42¢. **Total** means **sum.**

Example B

1
18¢
+24¢
42¢

Example C

18¢
+24¢
42¢

Write your work for these examples. Write it the way that helps you do the best work.

a	*b*	*c*	*d*	*e*	*f*	*g*
16¢	22¢	25¢	17¢	13¢	24¢	16¢
+18¢	+19¢	+26¢	+78¢	+49¢	+37¢	+59¢

Breakfast Food Boxes

(Two-place addition with changing)

Fred went to a boys' camp. One day he helped get breakfast. He counted the boxes of breakfast food. There were 10 little boxes in a package.

1. Fred found 2 full packages (10 boxes each) and 6 more boxes. How many was that? He looked some more and found 3 full packages (10 boxes each) and 4 little boxes. How many was that? How many did he find in all? 26 + 34 = ?

2. Explain Examples **A, B, C,** and **D.** They all show that we can change 10 ones to 1 ten just as we change 10 pennies to 1 dime.

Example A

$$\begin{array}{rr} 2\text{ tens} & 6\text{ ones} \\ +3\text{ tens} & 4\text{ ones} \\ \hline 5\text{ tens} & 10\text{ ones} \end{array} = 6\text{ tens } 0\text{ ones} = 60$$

Example B

$$\begin{array}{rr} \overset{1}{2}\text{ tens} & 6\text{ ones} \\ +3\text{ tens} & 4\text{ ones} \\ \hline 6\text{ tens} & 0\text{ ones} \end{array} = 60$$

Example C

$$\begin{array}{r} \overset{1}{2}6 \\ +34 \\ \hline 60 \end{array}$$

Example D

$$\begin{array}{r} 26 \\ +34 \\ \hline 60 \end{array}$$

Fred found 60 little boxes of breakfast food. This was the same as 6 big packages of 10 each.

3. Copy and add:

a. 34+56 *c.* 59+21 *e.* 23+57 *g.* 19+68 *i.* 61+19
b. 16+64 *d.* 67+18 *f.* 53+37 *h.* 72+18 *j.* 44+46

Ride the Bus

(Addition and subtraction)

1. One day Susan rode to town on the bus. There were 14 people on the bus after she got on. On the way 17 more people got on the bus. No one got off. How many people rode to town on the bus?

2. The bus ride cost 9¢. Susan spent 25¢ in town. How much had she spent before she started home?

3. Susan started home. There were 26 people on the bus, counting Susan. Nine other people got on later. No one got off. How many people were on the bus then?

★**4.** There were 35 people on the bus. Susan was the 22nd rider to get off. How many were left on the bus then?

Write and Tell

Copy these examples and write the totals.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	34 +26	56 +37	48 +29	25 +68	65 +16	56 +33	55 +36
2.	88 + 6	43 + 7	34 + 9	48 + 9	69 + 9	64 + 9	72 + 9
3.	48 +16	18 +45	67 +19	35 +49	53 +28	19 +47	52 +38

Subtract. Say the answers quickly:

1. 10−3 12−6 13−4 10−6 10−2 14−9
2. 13−7 10−4 14−5 13−6 10−1 14−6
3. 12−3 14−8 11−2 12−4 16−7 12−5
4. 10−9 11−3 13−8 10−7 15−6 11−6

Improve Yourself Test: Column Addition

Copy and add down. Check by adding up. The colored numbers show the pages for review.

	a	b	c	d	e	f	g	
1.	3 4 6	8 1 9	7 2 6	3 3 8	4¢ 5¢ 5¢	6¢ 1¢ 9¢	4¢ 4¢ 9¢	(73)
2.	34 10 43	45 21 32	20 12 50	42 25 11	28 10 41	10 63 22	21 30 27	(105)
3.	5 2 6 4	6 4 1 8	2 7 2 6	2 4 3 7	3¢ 1¢ 6¢ 8¢	2¢ 7¢ 5¢ 2¢	2¢ 5¢ 9¢ 3¢	(120)

Improve Yourself Test: Addition and Subtraction by Endings

Copy and add:

	a	b	c	d	e	f	g	
1.	73 3	83 5	92 6	36 3	45 4	73 4	51 7	(118)
2.	81 9	72 8	43 7	36 8	55 9	64 9	87 4	(123 127)

Copy and subtract:

	a	b	c	d	e	f	g	
3.	56 4	46 2	37 2	23 3	98 6	75 5	89 3	(118 124)
4.	24 5	46 7	50 5	35 8	80 2	68 9	90 1	(138 140)

Jack and Jane Buy Things for School

(Two-place subtraction with changing)

Jack and Jane are brother and sister. One day they both needed money to buy things for school. Jane said she had to have 16¢. Jack was not sure how much money he needed.

Their mother said, "I have 3 dimes and 3 pennies. I will give them to Jack. Jack, you stop at the store and get some change. Give Jane 16¢ and keep the rest."

1. How much money will Jack have after he gives Jane 16¢? Study Examples **A, B,** and **C.**

Example A

$$\begin{array}{rcl} \text{3 dimes 3 pennies} & = & \text{2 dimes 13 pennies} \\ \underline{-\text{1 dime 6 pennies}} & = & \underline{\text{1 dime 6 pennies}} \\ & & \text{1 dime 7 pennies} = 17\text{¢} \end{array}$$

Example B

$$\begin{array}{r} \overset{2}{\cancel{3}}\overset{13}{\cancel{3}}\text{¢} \\ \underline{-16\text{¢}} \\ 17\text{¢} \end{array}$$

Jack could not give Jane 16¢ from 3 dimes and 3 pennies. He had to change 1 dime for 10 pennies. Then he had 2 dimes. How many pennies did he have?

Jack gave Jane 6 pennies and 1 dime. How many pennies did he still have? 13 − 6 = 7. How many dimes did he still have? 2 − 1 = 1.

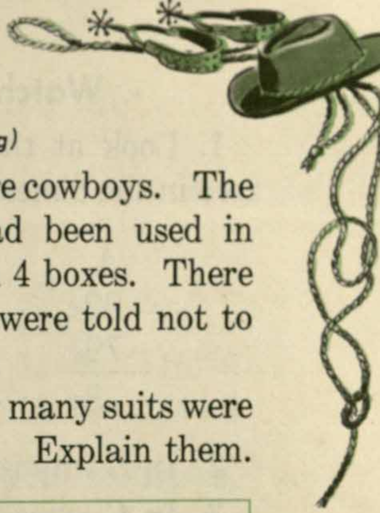
How much money did Jack still have?

Example C

$$\begin{array}{r} 33\text{¢} \\ \underline{-16\text{¢}} \\ 17\text{¢} \end{array}$$

2. Copy these examples and subtract. Change a dime to pennies only if you need more pennies.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
38¢	45¢	44¢	31¢	76¢	42¢	55¢	97¢	83¢
−19¢	−24¢	−18¢	−17¢	−65¢	−18¢	−37¢	−18¢	−67¢



Cowboy Suits

(Two-place subtraction with changing)

In a school play some of the boys were cowboys. The school had 40 cowboy suits that had been used in another play. They were put away in 4 boxes. There were 10 suits in each box. The boys were told not to open any more boxes than they had to.

1. If 29 boys each took one suit, how many suits were left in the boxes? Study **A, B,** and **C.** Explain them.

Example A

$$\begin{array}{rcl} \text{4 tens 0 ones} & = & \text{3 tens 10 ones} \\ \underline{-\text{2 tens 9 ones}} & = & \underline{\text{2 tens \ \ 9 ones}} \\ & & \text{1 ten \ \ 1 one} \ = 11 \end{array}$$

Example B

$$\begin{array}{r} \overset{3}{\cancel{4}}\overset{10}{\cancel{0}} \text{ suits} \\ \underline{-29 \text{ suits}} \\ 11 \text{ suits} \end{array}$$

We cannot subtract 9 ones from 0 ones. We have to change 1 ten to 10 ones. We subtract 9 ones from 10 ones. 10 − 9 = 1. We write 1 in the ones' column.

Example C

$$\begin{array}{r} 40 \text{ suits} \\ \underline{-29 \text{ suits}} \\ 11 \text{ suits} \end{array}$$

We have 3 tens. We subtract 2 tens. 3 tens − 2 tens = 1 ten.

Eleven suits were left (1 box of 10 and 1 more suit).

2. Copy these examples and subtract. Write them the way that helps you do your best work. Change 1 ten to 10 ones only if you need to do so.

a. 42−13 *b.* 60−27 *c.* 50−15 *d.* 72−29 *e.* 96−60

Watch the Zero in Subtraction

1. Look at the remainder in **A.** Why is there no zero in the dimes' place?

A	B	C	D
82¢	88¢	90¢	40¢
−79¢	−38¢	−27¢	−9¢
3¢	50¢	63¢	31¢

2. In **B** why is the zero needed in the pennies' place?

3. In **C** what is the use of the zero in 90¢? What does it tell you?

4. In **D** why is the zero needed in 40¢? Why is no zero needed in the dimes' place beside the 9¢?

> Sometimes zero (0) is needed to hold the place. If there are no ones, we need a zero to hold the ones' place.

Copy these examples. Subtract and check. Watch the zeros. Use them when they are needed to hold a place.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
5.	62¢	41¢	43¢	62¢	89¢	90¢	52¢	64¢	78¢
	39¢	28¢	39¢	8¢	70¢	35¢	22¢	50¢	8¢
6.	42¢	75¢	68¢	26¢	70¢	60¢	50¢	90¢	99¢
	39¢	66¢	38¢	16¢	27¢	34¢	9¢	18¢	8¢
7.	59	70	28	80	96	97	89	30	85
	29	9	9	72	46	89	23	21	18
8.	98	62	69	73	86	56	48	90	74
	48	12	54	69	21	29	7	27	28

Do It Quickly

Write the answers quickly without copying the examples:

	a	b	c	d	e	f
1.	13−4	12−4	11−6	11−3	13−5	13−9
2.	16−7	14−9	11−2	12−7	11−8	15−6
3.	16−9	13−6	13−7	10−8	14−7	14−8

Write the answers to these subtraction examples. Copy the examples only if you need to do so.

	a	b	c	d	e	f	g	h
4.	56	79	50	42	74	51	63	93
	50	45	10	40	40	40	40	70
5.	65	78	74	89	91	68	93	88
	30	60	30	30	60	30	30	18

Copy these examples and subtract. Check by adding.

	a	b	c	d	e
6.	90−53	71−33	81−56	92−34	93−44
7.	72−33	84−36	74−45	86−48	81−35
8.	91−30	92−55	62−56	91−47	81−44
9.	59−33	93−20	92−50	79−40	70−34
10.	90−37	68−40	80−33	51−46	82−55
11.	51−40	73−34	81−33	92−36	71−35

Add. Write only the answers on your paper.

	a	b	c	d	e	f	g	h	i
12.	31	71	60	40	41	50	22	80	46
	10	10	18	10	50	14	60	17	30
13.	35	46	24	64	53	44	61	75	87
	9	7	8	9	8	7	9	8	9

Write or Tell

(Addition and subtraction problems)

1. Jack wanted a game that cost 38¢. Dick wanted one that cost 47¢. How much would both games cost?

2. Which boy would spend more money for the game he wanted? How much more?

3. Jack said, "I have 35¢ at home." How much more did he need to buy the game that cost 38¢?

4. Dick said, "I have 6¢ in my pocket, I have 8¢ in my bank, and Mother owes me 7¢." How much money is that in all?

5. If Dick's game cost 47¢ and he had 21¢, how much more money did he need?

6. A few days later Dick got some more money. He then had 50¢. He bought his game for 47¢. How much did he have left?

7. Jack bought the 38¢ game. Later he bought another game for 48¢. How much did he spend for both games?

8. Dick played with his game for a week. Then he sold it to Tom for 17¢. Dick paid 47¢ for it in the first place. How much less did he get for it than he paid for it?

9. After Jack had bought his 38¢ game, he saw the same game in another store for 29¢. How much would Jack have saved if he had bought the game in the other store?

10. Joe knew there was a sale on games at the toy store. He took 57¢ with him to the sale. He spent only 8¢. How much money did he still have?

It Pays to Save

The boys and girls at Walker School are learning to save things that can be used.

1. Twenty-five children in one grade said they could bring old toys for children who had none. Only 17 remembered to bring toys. How many did not?

2. Seventeen toys were brought in. Only 9 could be used as they were. How many toys could not be used?

3. Seventeen boys and 13 girls said they were saving short pencils. How many children were saving short pencils?

4. Joe brought 25 pounds of old papers to school. Jean brought 32 pounds.

a. How much did they bring together?

b. What was the difference between what Joe brought and what Jean brought?

5. On Monday the boys and girls of one grade brought 25 pounds of paper. On Tuesday they brought 38 pounds. How much did they bring on both days?

★**6.** Make a list of things in your school room or at home that weigh 1 pound or 5 pounds or 10 pounds.

Keep Your Skill

Copy these examples and add down. Check by adding up.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
4	6	5	4	7	6	9	4	8
7	7	4	9	2	8	7	8	5
6	4	5	6	7	8	9	5	4
8	9	6	8	5	8	7	8	6

How Much Money?

1. How many cents do you have all together if you have:

a. 2 nickels and 7 pennies?
b. 2 quarters and 2 dimes?
c. a half dollar, 2 dimes, and 8 pennies?
d. 6 dimes, 1 nickel, and 3 pennies?

2. How much change should you get if you spend:

a. 18¢ out of a quarter?
b. 37¢ out of a half dollar?
c. 21¢ out of a half dollar?
d. 6¢ out of a quarter?
e. 32¢ out of a half dollar?
f. 11¢ out of a half dollar?

Make Your Own Problems

Make up eight number problems for the class. Make both addition and subtraction problems about:

1. having 25¢ and earning 9¢ more.
2. reading 17 pages in one book and 9 pages in another.
3. putting 9 flowers in one group and 15 in another.
4. spending 19¢ for apples and 26¢ for dates.

Time for Practice

Copy these examples and subtract. Add to check.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	42 29	77 26	86 55	60 40	81 25	82 46	71 40	72 43	50 43
2.	93 10	60 14	96 20	61 43	98 70	62 55	72 34	86 37	83 59
3.	53 40	71 42	73 40	61 15	60 24	62 46	61 30	60 53	98 20

Review of Unit 4

1. You would have to change a ten to subtract 8 from some of these numbers. Which ones?

34 78 61 63 85 59 37 40

2. You would have to change 10 ones to 1 ten when you add some of these numbers. Which ones?

34 and 58 52 and 19 34 and 55 36 and 98

Copy these examples and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*
3.	56	47	38	29	84	65	34
	37	39	56	32	12	29	29
4.	27	39	17	46	15	24	14
	69	59	78	37	26	46	57

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*
5.	30	76	80	83	64	90	47
	13	37	52	15	35	21	29
6.	52	63	74	85	96	70	48
	36	34	28	45	37	24	37

7. Look at the blue numbers below.

34+38=72 *a.* Which numbers tell a total?
54+29=83 *b.* Which numbers tell a remainder?
83−45=38 *c.* Which numbers tell a difference?
35−23=12 *d.* Which numbers tell a sum?

8. Do what the signs tell you to do. Write your work.

a. 18+49
b. 23+48
c. 17+48
d. 38+46
e. 37+54
f. 49−30
g. 94−31
h. 32−17
i. 85−69
j. 53−16

How Much Have You Learned?

(Chapter Test 4)

Copy these examples and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	11¢	22¢	13	15	24	33	56	42
	8¢	7¢	6	3	4	5	2	5
2.	25¢	33¢	54	42	51	32	66	48
	5¢	7¢	6	8	9	8	4	2
3.	12¢	5¢	6	65	24	45	24	19
	9¢	27¢	19	6	9	9	8	9
4.	45¢	11¢	23	47	43	28	37	79
	28¢	79¢	68	43	38	59	49	18

5. *a.* 6 + 4 + 8 + 9 *b.* 6 + 9 + 6 + 9

Copy these examples and subtract:

6.	66¢	25¢	36	48	49	47	56	79
	3¢	2¢	2	4	8	5	5	7
7.	29¢	34¢	56	48	17	62	85	73
	9¢	4¢	6	8	7	2	5	3
8.	30¢	50¢	70	20	40	60	90	80
	8¢	1¢	5	2	3	4	7	6
9.	24¢	31¢	42	25	35	21	42	54
	8¢	6¢	5	6	9	9	8	8
10.	42¢	80¢	72	30	27	78	36	60
	12¢	17¢	69	23	18	38	29	27
11.	73¢	98¢	74	36	42	61	58	33
	35¢	29¢	56	18	19	38	39	18

Improve Yourself Test: Two-Place Addition

Copy these examples and add. The colored numbers show the pages for review.

	a	*b*	*c*	*d*	*e*	*f*	*g*	
1.	22 54	31 37	12 35	23 20	73 21	11 41	36 50	(96)
2.	30 50	10 60	20 40	10 50	62 35	44 53	23 66	(93 96)
3.	18 74	25 56	44 47	45 37	38 55	64 18	27 67	(148 149)
4.	37 34	48 27	35 49	57 35	55 28	53 29	71 19	
5.	22 39	14 59	53 18	36 29	19 43	69 15	48 18	

Improve Yourself Test: Two-Place Subtraction

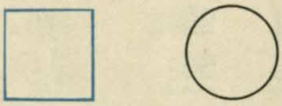
Copy these examples and subtract. The colored numbers show the pages for review.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	
1.	60 10	40 30	70 20	90 10	80 40	30 20	50 40	90 80	(93)
2.	59 13	47 24	86 14	93 23	79 64	86 63	78 13	97 65	(196)
3.	61 21	94 84	89 59	52 22	76 74	64 63	49 43	83 82	(102)
4.	46 17	55 38	77 49	64 39	48 29	83 18	72 27	51 24	(152 153)

Achievement Test: Part I

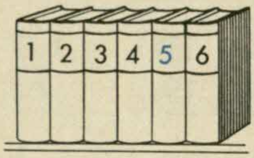
You see something blue in each exercise. You see two or more words with each exercise. Tell which word or words go with the blue part. In Exercise **1** the word "square" goes with the blue part.

1.



Circle
Square

2.



Which one?
How many?

3. 6 5 16
One-place number
Two-place number

4. 99
Ones' place
Tens' place
Nines' place

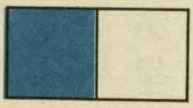
5.
$$\begin{array}{r} 35 \\ -9 \\ \hline 26 \end{array}$$

Remainder
Sum

6.
$$\begin{array}{r} 24 \\ +32 \\ \hline 56 \end{array}$$

Difference
Sum

7.



One half
One third
One fourth

8.
$$\begin{array}{rrr} 6 & 2 & 2 \\ +3 & +2 & +3 \\ \hline 9 & 4 & 5 \end{array}$$

Double
Near-double

9. 7 8

Odd number
Even number

10. 20

Teen Zero One

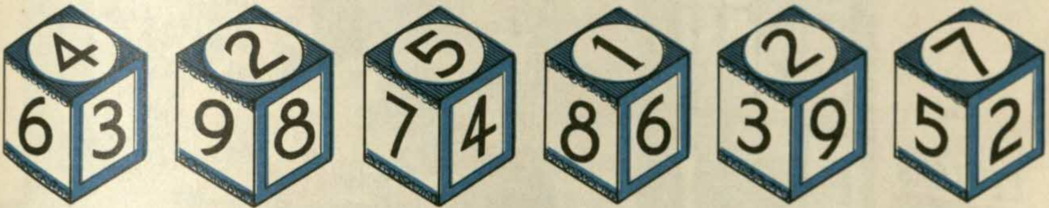
11. Put together Add
Take apart Subtract

Achievement Test: Part 2

Add or subtract. Watch the signs.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	2+8	8+9	3+7	8+6	4+9	3+8	9+7
2.	4+6	9+5	7+8	6+7	4+7	6+9	5+7
3.	18−9	10−3	16−7	13−5	15−8	10−4	14−6
4.	13−4	12−4	12−3	11−5	15−9	15−6	13−7

5. Add the 3 numbers on each block:



Copy and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*
6.	13 4	86 3	25 3	20 40	30 60	70 16	33 40
7.	24 65	15 53	32 66	41 49	66 25	53 27	77 17

Copy and subtract:

8.	38 2	83 3	69 8	80 40	90 30	67 27	49 42
9.	36 21	68 55	49 34	50 39	72 23	94 35	81 72
10.	23 19	47 28	38 28	54 27	62 38	71 65	89 38

CHAPTER

5

Addition and Subtraction of Three-place Numbers

UNIT 1 THREE-PLACE NUMBERS

At the Post Office

(Class discussion—postal information)

Tom's father asked Tom to go to the post office for some stamps. The picture on the page across from this one shows Tom at the post office.

1. What are stamps used for?

2. How much do you pay for a stamp for a letter? For a post card?

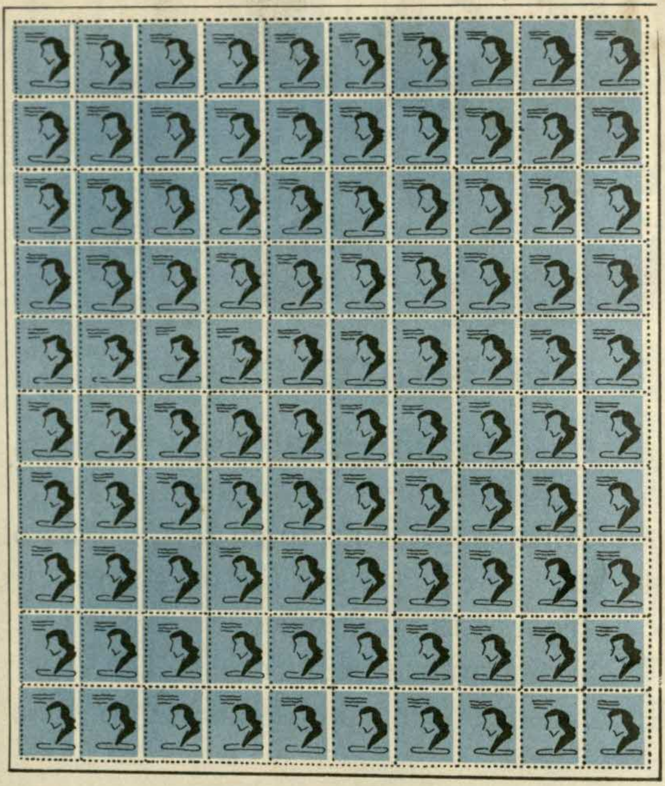
3. What colors are 1¢ stamps? 2¢ stamps? What colors are 3¢ stamps? 4¢ stamps?

4. Is Tom at the right window in the post office? What is **parcel post?**

5. What is each of these stamps used for: A two-cent stamp? A three-cent stamp? An air-mail stamp? A special-delivery stamp?

6. How much do you pay to send a letter by **air mail?** How much do you pay to send a letter **special delivery?** Why do people pay more to send letters by air mail and special delivery?

★**7.** Do you live in a city, in a small town, or on a farm? How do people who live on farms get their letters? How do city people get their letters? How do you get your letters?



A Sheet of Stamps

(Review of idea of one hundred)

1. How many stamps are there in each row across the sheet? How many rows are there?

2. Count **by tens** as you point to the rows of stamps: 10, 20, 30, and so on. How many stamps are there in the whole sheet? 10 tens = 100 (1 hundred).

Say the answers. Watch the signs.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
3.	10 +70	99 −90	30 +14	67 +10	40 +16	26 +70	13 +80	54 −30	18 +60
4.	96 −50	60 −50	95 −65	72 −30	94 −34	84 −30	56 −55	88 −40	97 −20

One Thousand Stamps

(Counting by hundreds)

Tom's father told him, "Please buy **1 thousand** 1¢ stamps for me. That is the same as **10 hundred.** You will get 10 sheets of stamps with 100 stamps in each."

Tom watched the post office clerk count the stamps. The clerk put down one sheet of stamps at a time. Each sheet had 100 stamps. He counted like this: "1 hundred, 2 hundred, 3 hundred, 4 hundred, 5 hundred, 6 hundred, 7 hundred, 8 hundred, 9 hundred, 10 hundred. That makes 1 thousand stamps."

The clerk was counting **by hundreds**.

1. Read these different ways of counting. What is alike in all the rows?

a.	1	2	3	4	5	6	7	8	9	10
b.	10	20	30	40	50	60	70	80	90	100
c.	100	200	300	400	500	600	700	800	900	1000

> We can count by hundreds just as we count by tens or by ones.

2. Which row above has mostly one-place numbers? Which has mostly two-place numbers? Mostly three-place numbers?

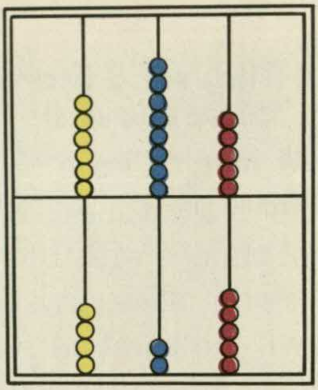
3. What is the smallest two-place number? The smallest three-place number? What is the only four-place number on this page?

★4. Make some paper tickets.

a. Put them in packs of 10 each.

b. Put 10 packs together to make 100 tickets.

c. Put 10 hundreds together to make a pack of 1000.



The Abacus

1. The picture shows an **abacus.** Count all the balls on each rod that goes up and down. How many are there for each rod?

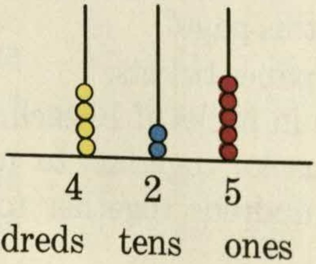
Every rod on the abacus has 10 balls in all.

2. Look at the wire that goes across the abacus. It holds the balls at the top until we need to use them at the bottom. Each red ball is worth one. How many ones are below the wire?

3. Each blue ball is worth ten. How many tens are below the wire?

4. Each yellow ball is worth one hundred. How many hundreds are below the wire?

5. This abacus shows four hundred twenty-five. Four hundred twenty-five = 4 hundreds, 2 tens, and 5 ones.

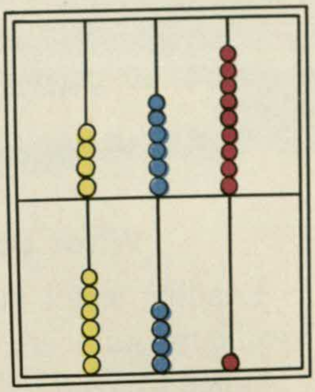


What Number on the Abacus?

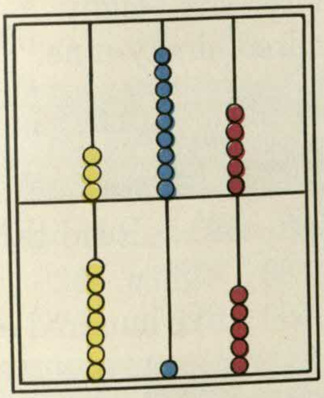
Each abacus on this page shows a different number. Do this for each abacus.

1. Count the ones.
2. Count the tens.
3. Count the hundreds.
4. Tell what the whole number is.
5. Write the whole number.

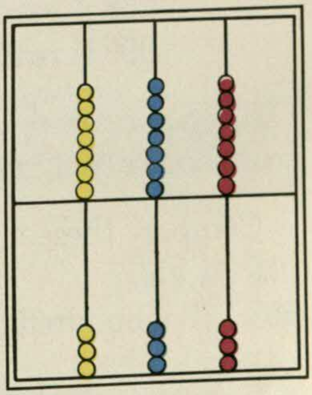
Remember to count only the balls below the wire.



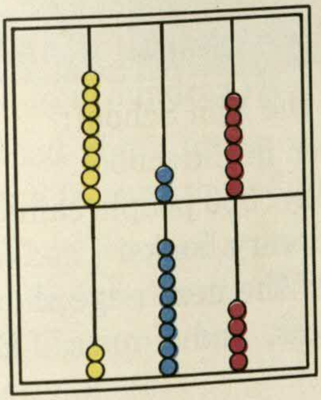
A



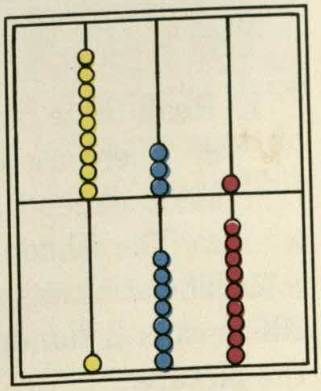
B



C



D



E

What Do Big Numbers Mean?

Reading small numbers first sometimes helps us to read large numbers. Read the numbers below:

When we read 7 we say **seven.**
When we read 47 we say **forty-seven.**
When we read 647 we say **six hundred forty-seven.**
268 is read two hundred sixty-eight.
999 is read nine hundred ninety-nine.

> We read numbers such as 647, 268, or 999 without saying **and.**

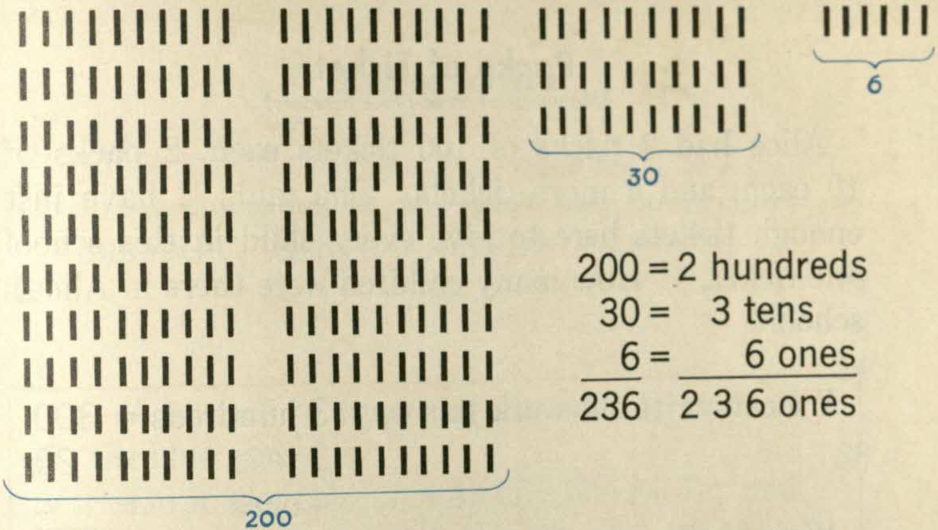
Compare these numbers: 508 580. Read them.

8	eight	80	eighty
508	five hundred eight	580	five hundred eighty

> In numbers such as 508 or 580 we do not say anything for the zero in tens' place or ones' place.

1. Read these facts about the Elm School:
  a. There are 627 children in the school.
  b. The school gave a play; 350 people came.
  c. The school has 978 library books.

2. The sticks at the top of the next page show that 236 means 2 hundreds, 3 tens, and 6 ones. Explain the picture.



$$\begin{array}{rcr} 200 & = & 2 \text{ hundreds} \\ 30 & = & 3 \text{ tens} \\ \underline{6} & = & \underline{6 \text{ ones}} \\ 236 & & 2\ 3\ 6 \text{ ones} \end{array}$$

3. Study the way each of these numbers is read:

Number	How to Read It	What It Means
8	eight	8 ones
80	eighty	8 tens
800	eight hundred	8 hundreds
888	eight hundred eighty-eight	8 hundreds, 8 tens, and 8 ones

4. Read these numbers:

a. 396 *c.* 256 *e.* 215 *g.* 217 *i.* 211 *k.* 601
b. 378 *d.* 109 *f.* 435 *h.* 555 *j.* 810 *l.* 630

5. Write these numbers in figures:

a. two hundred *d.* one thousand
b. three hundred ten *e.* six hundred four
c. four hundred eleven *f.* three hundred three

6. Read the number of this page. Which way do you have to turn to find page 142? To find page 306?

★**7.** When we read a newspaper, we need to know how to read big numbers. What other uses do we have for reading big numbers? What uses do we have for writing big numbers?

Packs of Tickets

(Meanings of three-place numbers)

Alice had 3 packs of 100 tickets each, 2 packs of 10 each, and 4 more tickets. She said, "I have just enough tickets here to give every child in this school one ticket." How many children were there in Alice's school?

We can write our work this way: 3 hundreds = 300
2 tens = 20
4 ones = 4
We add the ones, tens, and hundreds. 324
There were 324 children in Alice's school.

1. How many tickets are there all together in each of the following? Write the number.

a. 4 packs of 100, 8 packs of 10, and 7 tickets
b. 6 packs of 100, 4 packs of 10, and 3 tickets
c. 2 packs of 100, 0 packs of 10, and 8 tickets
d. 9 packs of 100, 1 pack of 10, and 0 tickets

2. How many ones are there all together in each of the following? Write the number.

a. 8 hundreds, 2 tens, 3 ones
b. 2 hundreds, 6 tens, 1 one
c. 7 hundreds, 0 tens, 4 ones
d. 5 hundreds, 0 tens, 0 ones
e. 7 hundreds, 4 tens, 0 ones

3. Copy these facts and fill in the missing numbers.

a. 15 tens = ? hundred and ? tens
b. 38 tens = ? hundreds and ? tens
c. 20 tens = ? hundreds and ? tens
d. 32 tens = ? hundreds and ? tens

Say or Write

Add

74 At the sides of the page are some blue 87
numbers. Here are some red numbers.
23 76

8 9 7 6

85 54
Add each of these red numbers to each of
56 the blue numbers. 88
Do it like this: $74+8=82$; $23+8=31$; and
17 so on. 43
See how quickly you can say or write the
59 answers. 25

68 49

Subtract

35 At the sides of the page are some red 64
numbers. Below are some blue numbers.
42 85

1 5 3 7 8

93 92

2 4 6 9

74 Subtract each of the blue numbers from 81
each of the red numbers.
51 Do it like this: $35-1=34$; $42-1=41$; and 73
so on.
96 See how quickly you can say or write the 46
answers.
54
57

Do It Quickly

(Adding and subtracting hundreds, tens, and ones)

1. Say the numbers from:

a. 184 through 284 by 10's. Begin 184, 194.

b. 627 back to 527 by 10's. Begin 627, 617.

c. 156 to 956 by 100's. Begin 156, 256.

d. 807 back to 7 by 100's. Begin 807, 707.

e. 290 to 390 by 10's. Begin 290, 300.

2. Tell how many tickets you have if you have:

a. 184 and get 100 more?
b. 197 and get 10 more?
c. 199 and get 1 more?
d. 270 and get 100 more?
e. 498 and get 10 more?
f. 209 and get 1 more?
g. 279 and give away 1?
h. 607 and give away 10?
i. 420 and give away 100?
j. 107 and give away 10?
k. 350 and give away 1?
l. 180 and give away 100?

Which Is the Larger Number?

(Oral work)

1. Carl has 148 stamps, and Jim has 184. Which boy has more stamps?

2. Betty has 205 post cards, and Ann has 189. Which girl has more post cards?

3. Which city is nearer, one that is 684 miles away or one that is 846 miles away?

4. Which man drives farther, one who drives 275 miles or one who drives 199 miles?

5. Which airplane flew farther, one that flew 709 miles or one that flew 798 miles?

6. Which school is bigger, one with 805 children or one with 850 children?

Review of Unit 1

Tell the answers.

1. What does each blue 4 mean? Does it show ones or tens or hundreds?

242 304 415 443 144

2. What does each blue figure mean?

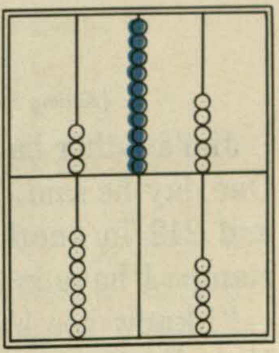
161 270 385 508 496

3. Say these numbers:

a. 126 349 675 489 225
b. 210 340 560 190 180
c. 30 300 303 33 333

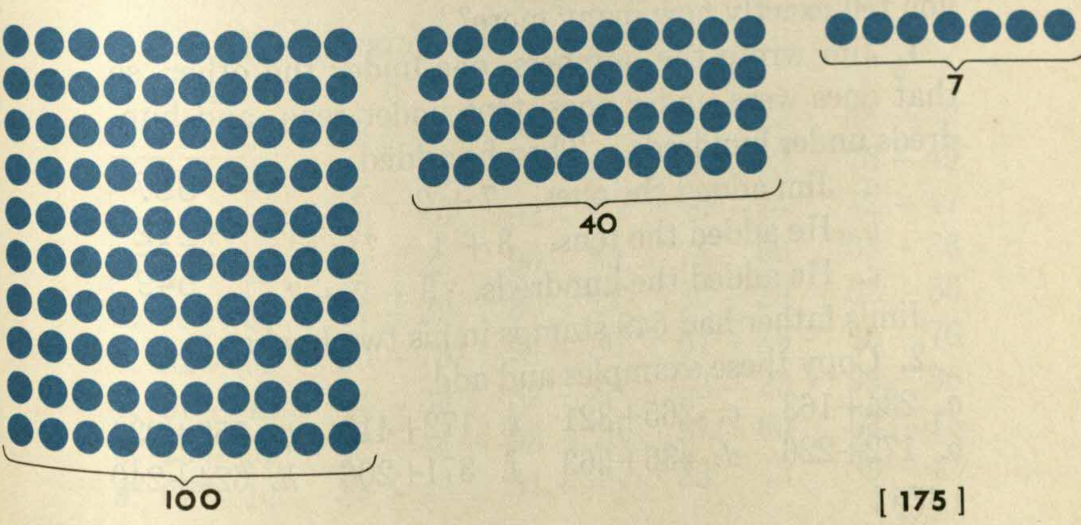
4. Write these numbers:

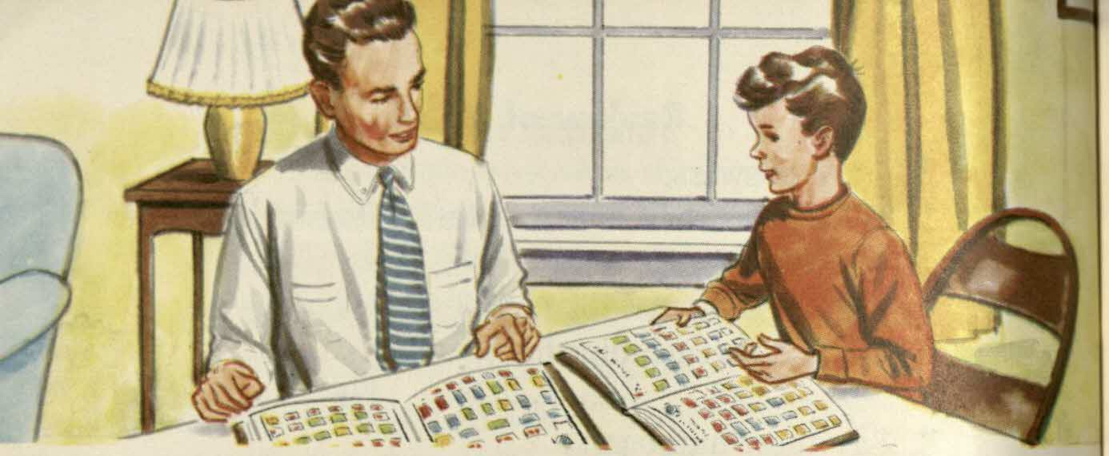
- *a.* two hundred twelve
- *b.* three hundred twenty-six
- *c.* four hundred four
- *d.* four hundred forty
- *e.* four hundred forty-four



5. What number does the abacus show?

6. What number does the picture below show?





UNIT 2 ADDING AND SUBTRACTING THREE-PLACE NUMBERS

Saving Stamps

(Adding two three-place numbers without changing)

Jim's father has been saving stamps for a long time. One day he said, "Jim, I have 337 stamps in one book and 212 in another book. Do you know how many stamps I have in both books?"

"I know you have more than 500 stamps," said Jim. How did Jim know that the sum was over 500?

His father said, "Yes, I have more than 500. Can you tell exactly how many more?"

1. Jim wrote the numbers, one under the other, so that ones were under ones, tens under tens, and hundreds under hundreds. Then he added.

a. Jim added the ones. $7 + 2 = ?$
b. He added the tens. $3 + 1 = ?$
c. He added the hundreds. $3 + 2 = ?$

$$\begin{array}{r} 337 \\ +212 \\ \hline 549 \end{array}$$

Jim's father had 549 stamps in his two books.

2. Copy these examples and add:

a. 234+163
b. 172+226
c. 265+321
d. 436+563
e. 172+415
f. 371+206
g. 553+234
h. 624+240

Comparing Stamp Books

(Subtracting three-place numbers without changing)

Jim had found how many stamps there were in both books. Then his father asked another question. He said, "If there are 337 stamps in one book and 212 stamps in the other, how many more stamps are there in the first book?"

$$\begin{array}{r} 337 \\ -212 \\ \hline 125 \end{array}$$

1. Jim wrote the numbers one under the other. He put ones under ones, tens under tens, and hundreds under hundreds. Then he subtracted.

a. Jim subtracted the ones. $7 - 2 = ?$
b. He subtracted the ten. $3 - 1 = ?$
c. He subtracted the hundreds. $3 - 2 = ?$

There were 125 more stamps in the first book.

2. Copy these examples and subtract:

a. 378 − 125
b. 494 − 212
c. 688 − 432
d. 969 − 443
e. 596 − 421
f. 887 − 141
g. 477 − 337
h. 785 − 384
i. 967 − 506
j. 919 − 603
k. 697 − 573
l. 789 − 532

Time for Practice

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*
1.	71 − 52	93 − 77	91 − 35	71 − 57	83 − 59
2.	41 − 24	79 − 65	83 − 64	90 − 53	76 − 49
3.	92 − 44	68 − 50	92 − 65	90 − 24	52 − 47
4.	81 − 42	54 − 25	90 − 89	74 − 66	53 − 36
5.	76 − 37	77 − 29	86 − 28	30 − 28	62 − 56
6.	82 − 33	90 − 79	94 − 80	61 − 36	85 − 76
7.	61 − 48	44 − 39	82 − 38	63 − 25	99 − 36
8.	83 − 55	62 − 44	98 − 70	97 − 60	63 − 15
9.	82 − 14	84 − 45	91 − 46	83 − 45	89 − 42

Cents, Dimes, and Dollars

Sometimes we have both dollars and cents in the same money number. We write **two dollars and thirty-four cents** like this: **$2.34**

The dot between the dollars and cents numbers is called the **decimal point.** We say **and** between dollars and cents when we read them.

There are two places after the decimal point when it is used between dollars and cents. The first place after the decimal point is for dimes and the second place is for pennies.

1. Say these numbers:

a. $1.25
b. $2.47
c. $5.24
d. $4.10
e. $6.40
f. $3.75
g. $9.17
h. $6.05

2. Say the right number in place of each question mark:

a. $1.25 = ? dollar, ? dimes, and ? pennies
b. $6.02 = ? dollars, ? dimes, and ? pennies
c. $8.30 = ? dollars, ? dimes, and ? pennies

We have two ways to write money numbers less than a dollar. We may write them:

With a dollar sign and a decimal point:	With only a cents sign:
$.09	9¢
$.24	24¢
$.37	37¢

Sometimes we have dollars but no cents. Then we may write the money numbers two ways:

$5 or **$5.00** **$10** or **$10.00**

The two zeros after the decimal point tell that we have **no** dimes and **no** pennies.

When Jim bought different numbers of stamps, he paid for them in different ways. Here are some ways.

Number of One-Cent Stamps	Cost of Stamps	Paid for in These Ways
1	$ .01	1 penny
10	$ .10	10 pennies or 1 dime
100	$ 1.00	10 dimes or 1 dollar
1000	$10.00	10 dollars

1. Tell what the 1 means in each of these numbers:
a. $.01   *b.* $.10   *c.* $1.00   *d.* $10.00

2. Tell how many 1¢ stamps you could buy for:
a. $.01   *b.* $.10   *c.* $1.00   *d.* $10.00

3. Copy these facts. In place of each question mark write a word. Write one of these words: cent, cents, dime, dimes, dollar, dollars

a. $.01 = 1 ?   *b.* $.10 = 1 ? or 10 ?
c. $1.00 = 1 ? or 10 ? or 100 ?
d. $10.00 = 10 ? or 100 ? or 1000 ?

4. Write each of these money numbers. Use the dollar sign and the decimal point.

a. one dollar and twenty-two cents
b. three dollars and forty-five cents
c. five dollars and fifteen cents
d. four dollars and nine cents
e. 7 dollars and 4 cents
f. 10 dollars
g. 4 dollars and 10 cents

5. Write each number in two ways:

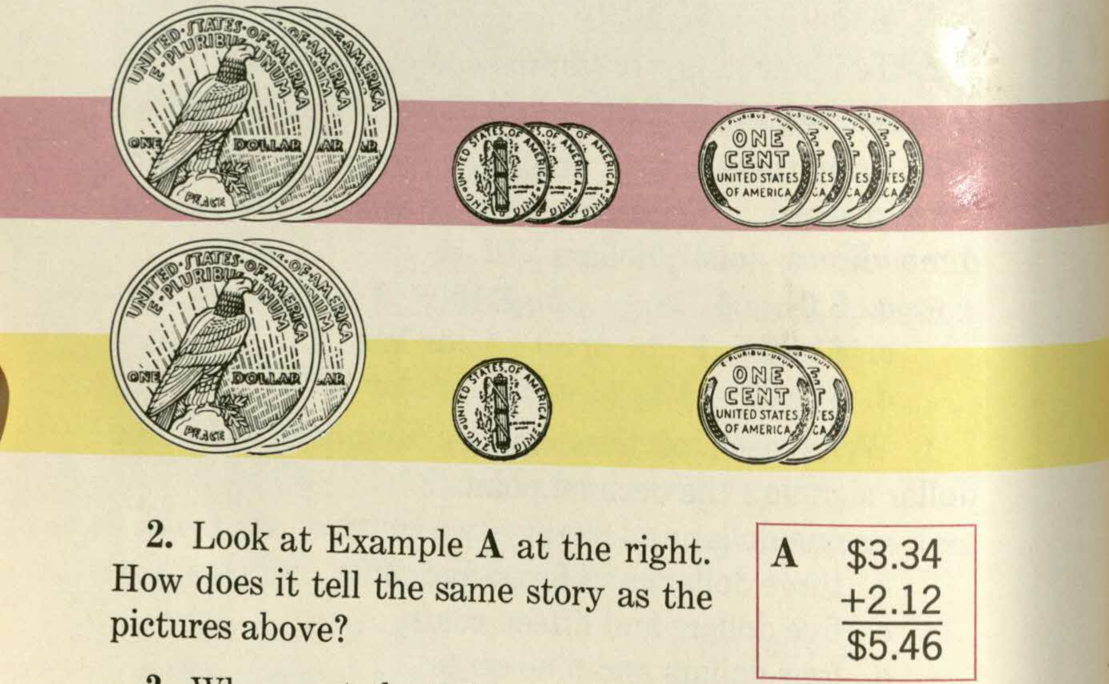
a. fifty-nine cents
b. seven cents
c. thirty-one cents
d. twelve cents
e. six dollars
f. ninety cents
g. nine dollars
h. one cent
i. fifty cents

Cloth for Dresses

(Adding and subtracting three-place money numbers without carrying or changing)

1. Sue's mother is going to make two dresses for Sue. The cloth for a red dress cost $3.34. The cloth for a yellow dress cost $2.12. How much did the cloth for both dresses cost?

The top row shows the money paid for the red cloth. The other row shows the money paid for the yellow cloth.



2. Look at Example **A** at the right. How does it tell the same story as the pictures above?

A

$$\begin{array}{r} \$3.34 \\ +2.12 \\ \hline \$5.46 \end{array}$$

3. Why must the 2 (Example **A**) be right under the 4 in the pennies' place? Why must the 1 be right under the 3 in the dimes' place? Why must the 2 be right under the 3 in the dollars' place?

4. Sue's red dress cost more than the yellow one. How much more did the red dress cost? Explain Example **B.**

B

$$\begin{array}{r} \$3.34 \\ -2.12 \\ \hline \$1.22 \end{array}$$

Keep Your Skill

Remember this:

▶ When we add or subtract dollars and cents:
We must keep the decimal points in a line.
We must add dollars to dollars, dimes to dimes, and pennies to pennies.
We must subtract dollars from dollars, dimes from dimes, and pennies from pennies.

1. Copy these examples and add:

a. $4.56 + $2.31
b. $1.72 + $8.10
c. $3.02 + $1.47
d. $1.14 + $6.01
e. 322 + 335
f. 233 + 646

2. Copy these examples and subtract:

a. $6.98 – $4.70
b. $8.68 – $4.06
c. $9.87 – $5.00
d. $9.91 – $3.60
e. $7.59 – $3.07
f. $7.79 – $5.32
g. 967 – 506
h. 678 – 535
i. 928 – 607

3. Copy these examples and do what the signs say.

a. 26+30
b. 25+47
c. 31+40
d. 57+17
e. 18+76
f. 71−53
g. 82−34
h. 81−54
i. 92−35
j. 61−55
k. 14¢+67¢
l. 30¢+19¢
m. 37¢+15¢
n. 15¢+76¢
o. 30¢+33¢
p. $.83−$.67
q. $.91−$.57
r. $.92−$.73
s. $.63−$.35
t. $.62−$.46

4. Write these numbers in figures:

a. one thousand
b. one hundred ten
c. one hundred four
d. two hundred twenty-nine
e. three hundred forty-two
f. six hundred six

5. For each pair of page numbers, which page is nearer the front of the book? Write the number.

a. page 102 or page 120
b. page 134 or page 143
c. page 87 or page 78
d. page 129 or page 109

Watching the Zero in Subtraction

(Zero as a place holder)

You need to watch the zeros in subtraction. You need to know when to write a zero in the answer and when to leave it out.

A	B	C	D	E	F	G
672	584	349	453	470	900	435
−152	−183	−342	−421	−270	−800	−430
520	401	7	32	200	100	5

1. Why must we write a zero in the ones' place in the answer in Example **A?** Would 52 be near the right answer?

2. Study **B.** If we left out the zero, the answer would be 41. Why is 41 not the right answer?

3. In Example **C** why do we not need to write zeros in the hundreds' and tens' places?

4. In **D** why do we not need to write a zero in the hundreds' place?

5. Explain the use of the zeros in **E** and **F** above. Explain the empty places in **G** above.

> Sometimes it is hard to know when to write the zero in a remainder. If the meaning of the number is different without the zero, you need to write the zero.

6. Some of the numbers given below are used in the examples at the top of the page. Do these pairs of numbers have the same or different meanings? Do you need to write the zeros?

a. Example **A.** 52 or 520
b. Example **B.** 401 or 41
c. Example **C.** 007 or 7
d. Example **D.** 032 or 32

7. Watch the zeros. Subtract. Write the answers.

a.	$\begin{array}{r}940\\-20\\\hline\end{array}$	$\begin{array}{r}475\\-75\\\hline\end{array}$	$\begin{array}{r}685\\-25\\\hline\end{array}$	$\begin{array}{r}358\\-52\\\hline\end{array}$	$\begin{array}{r}438\\-8\\\hline\end{array}$	$\begin{array}{r}309\\-6\\\hline\end{array}$	$\begin{array}{r}482\\-80\\\hline\end{array}$
b.	$\begin{array}{r}607\\-302\\\hline\end{array}$	$\begin{array}{r}476\\-436\\\hline\end{array}$	$\begin{array}{r}670\\-620\\\hline\end{array}$	$\begin{array}{r}385\\-285\\\hline\end{array}$	$\begin{array}{r}673\\-150\\\hline\end{array}$	$\begin{array}{r}424\\-102\\\hline\end{array}$	$\begin{array}{r}673\\-652\\\hline\end{array}$
c.	$\begin{array}{r}477\\-173\\\hline\end{array}$	$\begin{array}{r}470\\-150\\\hline\end{array}$	$\begin{array}{r}478\\-204\\\hline\end{array}$	$\begin{array}{r}479\\-129\\\hline\end{array}$	$\begin{array}{r}403\\-201\\\hline\end{array}$	$\begin{array}{r}684\\-4\\\hline\end{array}$	$\begin{array}{r}582\\-561\\\hline\end{array}$

★**8.** Make up an example like each part of Row *a* above. Use zeros in the same places as in the Row *a* examples.

Write or Tell

1. Copy these examples and subtract:

a. 78 − 36
b. 56 − 36
c. 43 − 36
d. 85 − 36
e. 70 − 36
f. 82 − 36
g. 74 − 36
h. 89 − 36
i. 91 − 36
j. 57 − 36
k. 85 − 29
l. 79 − 29
m. 91 − 29
n. 46 − 29
o. 52 − 29
p. 87 − 29

2. Copy these examples and add:

a. 81 + 18
b. 46 + 18
c. 50 + 18
d. 75 + 18
e. 32 + 18
f. 37 + 18
g. 58 + 18
h. 63 + 18

3. Say the answers quickly:

a. 10 − 5
b. 10 − 4
c. 11 − 7
d. 13 − 7
e. 14 − 5
f. 10 − 2
g. 11 − 2
h. 12 − 7
i. 13 − 8
j. 14 − 6
k. 14 − 9
l. 15 − 6
m. 16 − 7
n. 17 − 8
o. 17 − 9
p. 14 − 8
q. 15 − 8
r. 15 − 7
s. 11 − 3
t. 11 − 8
u. 12 − 4
v. 10 − 8
w. 11 − 5
x. 12 − 3
y. 12 − 5

Buying Food for the Picnic

(Column addition, carrying more than one ten)

The boys and girls at Washington School are going to have a picnic. Four children are buying food at the store. John is writing the prices of the things they buy. They do not want to spend too much.

1. This is what John has written on his paper. How much have the children spent so far? Add the numbers on John's paper.

What is the sum of the pennies' column? How many dimes must you carry? What is the sum of the dimes' column? Is John's answer right?

Food Costs

Milk	*$.36*
Cookies	*.19*
Bread	*.15*
Paper plates	*.28*
	$.98

When we have 20 in the sum of the ones' column, we change 20 ones to 2 tens and add 2 tens to the tens' column. We change a sum of 30 ones to 3 tens.

2. Copy these examples and add:

a. 34¢+18¢+10¢+28¢

b. 17¢+28¢+16¢+19¢

c. 18¢+16¢+30¢+27¢

d. 19¢+10¢+16¢+39¢

Make Your Own Problems

(Expressing addition and subtraction ideas)

1. Use some of the words in red and the numbers below to make up problems of your own. Write your work and the answer to each problem.

buy make find score need break ask for
see have earn plant save spend borrow

	a	b	c	d	e
(1)	7 + 5	3 + 9	5 + 6	16 − 8	14 − 6
(2)	8 + 6	5 + 9	2 + 9	11 − 3	12 − 3
(3)	4 + 9	6 + 6	7 + 4	16 − 7	14 − 5
(4)	5 + 7	7 + 7	9 − 3	11 − 4	13 − 5
(5)	4 + 6	4 + 7	9 − 5	14 − 9	12 − 7
(6)	3 + 8	7 + 6	7 + 8	9 + 6	8 − 5
(7)	13 − 4	11 − 5	11 − 7	12 − 6	7 − 3

2. Use the numbers and the words above to make 5 addition problems and 5 subtraction problems. Try to use the same word in both an addition and a subtraction problem. Here are ways to use the word "find":

Tom looked in his room for his marbles. He found 7 on the table and 8 in a box. How many marbles did he **find?** 7 marbles + 8 marbles = 15 marbles.

Jack had 11 marbles. He said that he bought 7 of them and found the others at home. How many marbles did he **find** at home? 11 marbles − 7 marbles = 4 marbles.

★**3.** Come back to this page some other day. Use different words with the numbers above. Use this page over and over until you have used all the numbers and all the words.

How Well Can You Work Problems?

(Problem Test 5)

1. Tom gets an allowance of $1.75 a month. He must pay for the things he needs for school from his allowance. One month he spent $1.03 for things for school. How much did he have left to spend for other things that month?

2. Jim does not get an allowance. Last month his father gave him $.60 for a play ticket, $.67 for school, $.70 for a ball, and $.45 to spend for fun. How much money did Jim get from his father last month?

3. Carl gets an allowance of $2.25 a month. Bill does not get an allowance, but his father gave him $1.04 to spend last month. Which boy got more money last month? How much more?

4. Mary gets an allowance of $.45 a week. She wants to buy a doll that costs $1.79. If she saves all of this week's allowance, how much more does she need to save before she can buy the doll?

5. Alice has saved $2.02 from her allowance. Her brother Joe has saved $1.90 from his. They want to buy some games to use on rainy days. How much money can they spend if they put all their money together?

6. Ann wrote in a notebook the total of the money she spent each day. At the end of one month she added the totals. She had spent $.92 for bus fare, $.81 for school, and $.55 for fun.

a. How much more did she spend for bus fare than for fun?

b. How much more for school than for fun?

c. What was the total for bus fare, school, and fun?

Review of Unit 2

1. Read these numbers:

a. $3.37
b. $1.07
c. $4.16
d. $9.80
e. 456
f. 307
g. 140
h. 144

2. Tell what 2 means in each of the numbers just below. Does it mean 2 ones, 2 tens, 2 hundreds, 2 dollars, 2 dimes, or 2 pennies?

a. $.02
b. $.20
c. $2.00
d. 200
e. 20
f. 2

3. Copy these numbers and add them:

a. 30+59+49+66
b. 48+50+38+77
c. 58+13+89+70
d. 49+39+48+18
e. 108+340
f. 345+652
g. 126+871
h. 478+310
i. 493+102
j. 804+105
k. $1.34+$8.00
l. $3.65+$6.01
m. $2.48+$7.10
n. $1.57+$7.21
o. 240+349

4. Copy these numbers and subtract:

a. 468 – 228
b. 517 – 302
c. 895 – 772
d. 486 – 365
e. 789 – 522
f. 697 – 456
g. 586 – 325
h. 949 – 836
i. $5.89 – $4.53
j. $9.35 – $4.23
k. $6.67 – $4.53
l. $7.78 – $4.57

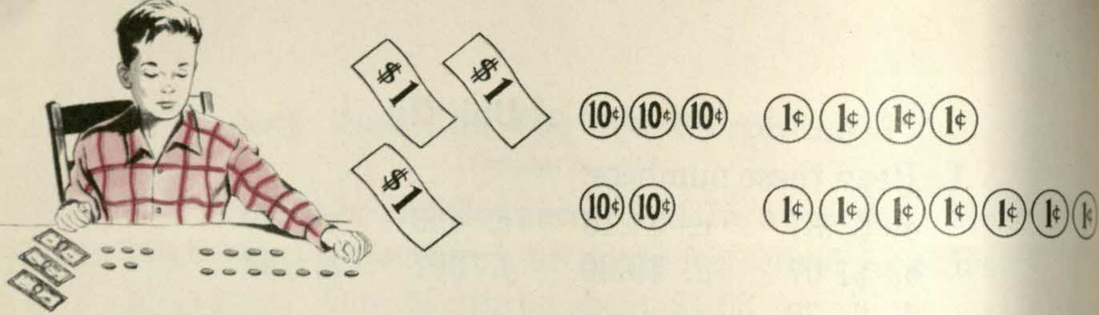
5. Copy these examples and subtract. Watch the zeros as you copy and watch the zeros in your answers.

a. $\begin{array}{r} 568 \\ -228 \\ \hline \end{array}$ *b.* $\begin{array}{r} 795 \\ -493 \\ \hline \end{array}$ *c.* $\begin{array}{r} 679 \\ -674 \\ \hline \end{array}$ *d.* $\begin{array}{r} 564 \\ -532 \\ \hline \end{array}$

e. $\begin{array}{r} 550 \\ -350 \\ \hline \end{array}$ *f.* $\begin{array}{r} 700 \\ -500 \\ \hline \end{array}$ *g.* $\begin{array}{r} 588 \\ -580 \\ \hline \end{array}$ *h.* $\begin{array}{r} 578 \\ -526 \\ \hline \end{array}$

6. Subtract 6 from each number below:

a. 58 *b.* 77 *c.* 43 *d.* 84 *e.* 85 *f.* 92



UNIT 3

ADDING AND SUBTRACTING THREE-PLACE NUMBERS WITH CHANGING A TEN

Jack Sells Papers

(Adding three-place money numbers, carrying a dime)

"I earned this money last week selling papers," said Jack. He put 2 dollars, 3 dimes, and 4 pennies on the table.

"Here," said Jack, "is the money I earned this week." He put on the table 1 more dollar, 2 more dimes, and 7 more pennies.

1. How much money did Jack have all together? Look at the picture. Then answer these questions:

$$\begin{array}{r} \$2.\overset{1}{3}4 \\ +1.27 \\ \hline \$3.61 \end{array}$$

a. 4 pennies + 7 pennies = ? pennies
b. 11 pennies = 1 dime and ? pennies
c. What number should you write in the pennies' column?
d. How many dimes should you carry to the dimes' column?
e. 1 dime + 3 dimes + 2 dimes = ? dimes
f. 2 dollars + 1 dollar = ? dollars

2. Copy these examples and add. Write the number you carry if you need to do so.

a. \$2.23 + \$5.49
b. \$2.56 + \$7.29
c. \$1.37 + \$4.24
d. \$4.51 + \$5.26
e. \$1.04 + \$6.55
f. \$4.57 + \$2.13

Be Very Careful

(Adding three-place numbers, carrying a ten)

1. Look at the first three examples below. Tell how they are alike. Tell how they are different.

$$\begin{array}{r} 19 \\ \underline{28} \\ 47 \end{array} \qquad \begin{array}{r} 119 \\ \underline{228} \\ 347 \end{array} \qquad \begin{array}{r} 219 \\ \underline{28} \\ 247 \end{array} \qquad\qquad \begin{array}{r} \$.48 \\ \underline{.32} \\ \$.80 \end{array} \qquad \begin{array}{r} \$3.48 \\ \underline{2.32} \\ \$5.80 \end{array}$$

2. Look at the other two examples above. How are they alike? How are they different?

> In adding three-place numbers we can change 10 ones to 1 ten and carry it to the tens' place. We do this in the same way that we do it in adding two-place numbers.

3. Copy these examples and add:

a. 36+26
b. 11+49
c. 19+76
d. 69+ 14
e. 374+108
f. 356+536
g. 561+329
h. 335+260
i. 555+238
j. 679+214
k. 625+356
l. 428+109

Comparing Sums Jack Earned

(Subtracting three-place money numbers, changing a dime)

What is the difference between the money Jack earned last week and the money he earned this week?

$$\boxed{\begin{array}{r} \$2.\overset{2}{\cancel{3}}\,\overset{14}{\cancel{4}} \\ \underline{-1.2\,7} \\ \$1.0\,7 \end{array}}$$

a. You cannot subtract 7 pennies from 4 pennies. Take 1 of the 3 dimes and change it to pennies. How many dimes are left? How many pennies are there now?

b. 14 pennies − 7 pennies = ? pennies

c. 2 dimes − 2 dimes = ? dimes

d. 2 dollars − 1 dollar = ? dollars

More Room at the High School

(Subtracting three-place numbers, changing a ten)

Alice said to Mrs. Brown, "Will you buy a ticket for the school play? The play will be at the high school."

"Why will it be at the high school?" asked Mrs. Brown.

"The high school has a room with 640 seats. Our biggest room has seats for only 426 people. More people can see the play if we have it at the high school."

1. How many more people can see the play if it is at the high school? Explain the example below. Explain both ways the work is checked.

$$\begin{array}{r} 6\overset{3}{\cancel{4}}\overset{10}{\cancel{0}} \\ -426 \\ \hline 214 \end{array} \qquad \begin{array}{r} \text{Check} \\ 214 \\ +426 \\ \hline 640 \end{array} \qquad \begin{array}{r} \text{Another Check} \\ 640 \\ -426 \\ \hline 214 \end{array} \uparrow \text{ Add up.}$$

2. Show that we change a ten to ones in the same way in each pair of these subtractions:

$$a.\quad \begin{array}{r} 640 \\ -426 \\ \hline 214 \end{array} \qquad \begin{array}{r} 40 \\ -26 \\ \hline 14 \end{array} \qquad\qquad b.\quad \begin{array}{r} \$5.96 \\ -1.47 \\ \hline \$4.49 \end{array} \qquad \begin{array}{r} \$.96 \\ -.47 \\ \hline \$.49 \end{array}$$

> When we subtract a three-place number, we change a ten to ones if we need to. We do it the same as when we subtract a two-place number.

3. Copy these examples and subtract. Check by adding. Change a dime or a ten only when you need to change it.

a. \$7.30 − \$1.13
b. \$4.11 − \$1.08
c. \$2.40 − \$1.03
d. 279 − 136
e. 626 − 215
f. 672 − 105
g. \$.80 − \$.43
h. \$.83 − \$.49
i. \$.72 − \$.71
j. 81 − 54
k. 92 − 33
l. 61 − 56

Improve Yourself Test: Column Addition

Copy these examples and add. Check by adding up. The colored numbers show the pages for review.

	a	*b*	*c*	*d*	*e*	*f*	
1.	11 20 68	23 31 45	45 30 13	40 11 46	$.22 .25 .30	$.63 .11 .15	(105)
2.	26 33 26	53 15 27	14 23 48	27 12 49	$.32 .17 .45	$.20 .34 .29	
3.	20 34 29 15	18 19 30 24	30 13 19 29	19 29 29 14	$.03 .18 .47 .16	$.18 .29 .08 .38	(121 184)

Improve Yourself Test: Addition Without Changing

Copy these examples and add. The colored numbers show the pages for review.

	a	*b*	*c*	*d*	*e*	
1.	$ .24 .65	$ .14 .73	36 63	57 42	13 82	(96)
2.	$ .15 .02	$ .24 .02	33 4	72 5	60 2	(118)
3.	$1.35 2.53	$2.46 1.32	374 501	192 406	153 716	(176 180)
4.	$1.23 3.74	$4.56 5.33	789 110	515 172	602 384	

Going to a Sale

(Addition and subtraction of money numbers)

Jane went to a sale with her mother. Her mother said, "You may pick out the clothes you want, but you may not spend more than $8.00."

1. Jane tried on two dresses that she liked. One dress cost $5.29 and the other cost $4.15. What was the difference in the prices of the two dresses?

2. Jane also tried on two pairs of shoes. One pair cost $3.65 and the other pair cost $2.59. How much more did the first pair cost?

3. Jane wanted the $5.29 dress and the $3.65 shoes. How much would they cost together? Could she get them both for $8?

4. How much would the $5.29 dress and the $2.59 shoes cost? Could Jane get them for $8?

5. How much would the $4.15 dress and the $3.65 shoes cost? Is that more or less than $8?

★**6.** How much would it cost to buy the dress and the shoes that cost the least?

★**7.** Jane did not know what to do. She said, "I need socks. I can't get them if I spend too much for the dress and shoes." Jane could get two pairs of socks for $1.10. Add their cost to the answer for Problem 6. Can Jane get all these things for $8.00?

Writing Figures

Write these numbers in figures. Use zeros in the right places.

1. two hundred seventy
2. five hundred five
3. three hundred thirteen
4. one hundred forty-two
5. two hundred sixty-one
6. six hundred ten

How Tall?

(Inch and yard)

1. What are Mary and Jack doing in the first picture? In the second picture?

2. Look at a yardstick. That is the kind of ruler Jack is using in the second picture. How long is the yardstick in inches?

3. Is Mary taller or shorter than the yardstick?

4. Jack made a mark on the board at the top of the yardstick. Then he moved the stick up to the mark that showed the top of Mary's head. He said, "Mary, you are 10 inches taller than the yardstick." How tall was Mary?

5. How many inches tall is each of these children? Write your answers.

- *a.* Jane is 13 inches taller than the yardstick.
- *b.* Bob is 16 inches taller than the yardstick.
- *c.* Helen is 12 inches taller than the yardstick.
- *d.* Fred is 15 inches taller than the yardstick.
- *e.* Ann is 11 inches taller than the yardstick.

36 inches = 1 yard

36 in. = 1 yd.

Foot and Yard

1. Use a yardstick and draw a line 1 yard long. Where can you draw a line that long?

2. Now measure the line with a foot ruler. How many times can you mark off the length of the foot ruler on the line that is 1 yard long? How many feet are there in a yard?

3. How many inches are there in a yard? 12 inches + 12 inches + 12 inches = ? inches. Copy the numbers in a column and add.

12 inches = 1 foot   3 feet = 1 yard
12 in. = 1 ft.   3 ft. = 1 yd.

4. Would you use a yardstick or a foot ruler to measure these things?

a. Length of this page
b. Length of a room
c. Length of a sock
d. Height of a table
e. Height of a chair
f. Height of a bookcase

5. Use a foot ruler or a yardstick. Measure each of the things named in Exercise 4.

★**6.** Measure the height of some boys and girls in your room. Find how much taller than the yardstick each one is. Then add that number of inches to 36 inches.

Time for Practice

Copy these examples and subtract:

a. 91 − 72
b. 74 − 40
c. 87 − 60
d. 92 − 43
e. 71 − 55
f. 74 − 45
g. 62 − 37
h. 99 − 28
i. 81 − 43
j. 73 − 67
k. 91 − 68
l. 72 − 44
m. 76 − 27
n. 89 − 83
o. 64 − 36
p. 92 − 75
q. 55 − 36
r. 67 − 28
s. 93 − 88
t. 90 − 74

Finding Differences in Height

1. Betty is the shortest girl in the class. She is 44 inches tall. Helen is the tallest girl in the class. She is 55 inches tall. What is the difference in their heights?

2. Carl is the tallest boy in the class. He is 59 inches tall. Dick is the shortest boy in the class. He is 46 inches tall. How much shorter is Dick?

3. Alice is 45 inches tall. Jane is 49 inches tall. What is the difference in the two girls' heights?

4. Jack's father is 72 inches tall. Jack is 58 inches tall. How many inches will Jack have to grow to be as tall as his father?

5. Make up problems. Use the heights of the children below. In the problems you make, use the words **shorter, taller,** and **difference.**

Tom is 52 inches tall.
Bill is 58 inches tall.
Jean is 49 inches tall.
Sally is 55 inches tall.

6. How many inches did these children grow in one school year? Their heights are given for the beginning of school and the end of school.

a. Jim: 48 in. at the beginning; 53 in. at the end.
b. Ann: 46 in. at the beginning; 50 in. at the end.

★7. Find out how much taller or shorter you are:

a. than the child who sits at your left.
b. than the child who sits at your right.

Do it Quickly

Have someone time you. How long does it take you to say the answers?

a. 11 − 3
b. 12 − 6
c. 13 − 4
d. 11 − 4
e. 12 − 3
f. 6 − 4
g. 11 − 5
h. 12 − 4
i. 11 − 6
j. 11 − 7

Going to See a Play

(Adding two two-place numbers, three-place sum)

1. In Walker School 84 children are on the first floor and 59 on the second floor. If all the children are to see a play at the same time, how many seats do they need? Explain the work.

$$\boxed{\begin{array}{r} \overset{1}{8}4 \\ +59 \\ \hline 143 \end{array}}$$

a. 4 ones + 9 ones = ? ones
b. 13 ones = 1 ten and ? ones
c. What do you write in ones' column?
d. What do you carry to tens' column?
e. 1 ten + 8 tens + 5 tens = ? tens
f. 14 tens = 1 ? and 4 tens
g. 143 = 14 tens and 3 ones = 1 hundred, ? tens, and ? ones

> When there are 10 or more tens in a sum, part of the sum is written in hundreds' place.

2. Tell how you get each sum in these examples.

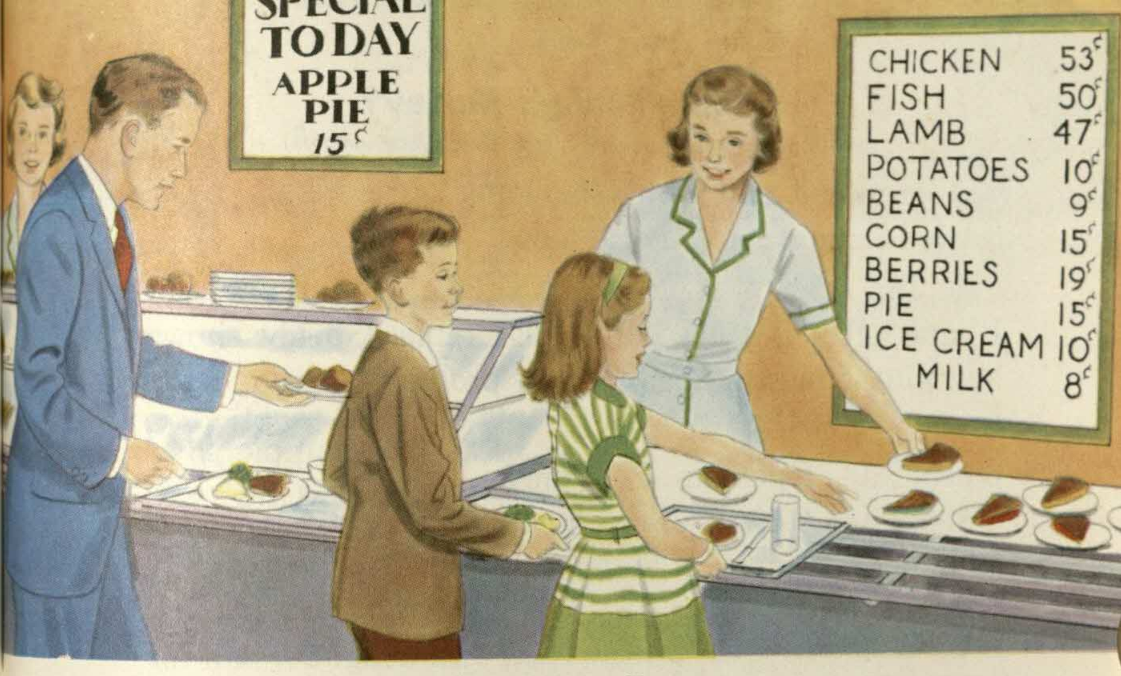
a	*b*	*c*	*d*	*e*	*f*	*g*
36	84	75	$ .25	$ .35	$ .36	$ .78
+65	+25	+83	+.82	+.99	+.67	+.72
101	109	158	$1.07	$1.34	$1.03	$1.50

3. In which of the above examples do you need to carry a ten or a dime?

4. In which examples do you get exactly 10 tens or 10 dimes in the sum? How do you write the 10 tens? How do you write the 10 dimes?

5. Copy and add. Check by adding up.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
24	46	57	68	73	$.97	$.87	$.53	$.75	$.58
95	84	51	39	59	.68	.21	.86	.25	.66



Eating Out

(Addition and subtraction problems)

Mrs. Woods was not at home for dinner. Mr. Woods took Jean and Fred out to eat. In the picture you will see a list of some prices where they ate.

1. Jean took for her dinner chicken, potatoes, ice cream, and milk. How much did her dinner cost?

2. Fred took for his dinner the fish, potatoes, beans, ice cream, and milk. How much did his dinner cost?

3. Mr. Woods had the lamb, potatoes, corn, pie, and milk for his dinner. What was the cost?

4. What was the difference between the cost of chicken and the cost of lamb?

★5. Make up some problems, using the prices above. Make both subtraction and addition problems.

★6. Play a game of "Eating Out." Make signs with prices on them. Take turns "eating out." Take different foods each time. Pay for your food with play money. The child you pay must check your sum.

Has Jim Enough Money?

(Subtracting two-place numbers from three-place numbers)

A group of children were going on a hike. They needed $.45 each to pay for food.

1. Jim said, "I have saved $1.36. How much will I have left if I spend $.45?" Example **A** below shows how Jim found the answer to his problem. Study it.

6 pennies − 5 pennies = 1 penny
1 dollar and 3 dimes are 13 dimes.
13 dimes − 4 dimes = 9 dimes

Example **A**

$$\begin{array}{r} \$1.36 \\ -.45 \\ \hline \$\ .91 \end{array}$$

2. Before he went on the hike, Jim bought a ball for $.89. How much did he have left of his $1.36? Example **B** tells the story. Study it.

Jim changed 1 dime to 10 pennies
  and added it to his 6 pennies.
16 pennies − 9 pennies = 7 pennies
1 dollar and 2 dimes = 12 dimes
12 dimes − 8 dimes = 4 dimes

Example **B**

$$\begin{array}{r} \$1.\overset{2}{\cancel{3}}\,\overset{16}{\cancel{6}} \\ -.8\ 9 \\ \hline \$\ .4\ 7 \end{array}$$

3. Jim had $.47 left after he bought the ball. Can he still go on the hike? How do you know?

4. Study these examples. Explain each one.

A $\begin{array}{r} 145 \\ -52 \\ \hline 93 \end{array}$ **B** $\begin{array}{r} 123 \\ -46 \\ \hline 77 \end{array}$ **C** $\begin{array}{r} 448 \\ -25 \\ \hline 423 \end{array}$ **D** $\begin{array}{r} \$3.92 \\ -.78 \\ \hline \$3.14 \end{array}$ **E** $\begin{array}{r} \$2.83 \\ -.79 \\ \hline \$2.04 \end{array}$

5. Copy these examples and subtract:

a. 128 − 63
b. 136 − 58
c. 259 − 46
d. 183 − 54
e. 119 − 57
f. 140 − 57
g. $4.96 − $.87
h. $2.76 − $.58
i. $1.49 − $.92

[illegible] **MAY** [illegible]

Sun.	Mon.	Tues.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

The Calendar

1. This is a **calendar** for the month of May. What is a calendar? How do we use calendars?

2. Look at a calendar for last year and one for this year. How are they different?

3. How many days are there in a week? How does the calendar show a week? How many whole weeks are there in every month?

4. How many days are there in 2 weeks? In 3 weeks? In 4 weeks?

$7 + 7 = ?$ $\quad 7 + 7 + 7 = ?$ $\quad 7 + 7 + 7 + 7 = ?$

5. Look at a calendar for the whole year. How many months are there in a year? About how many weeks? How many days?

7 days = 1 week

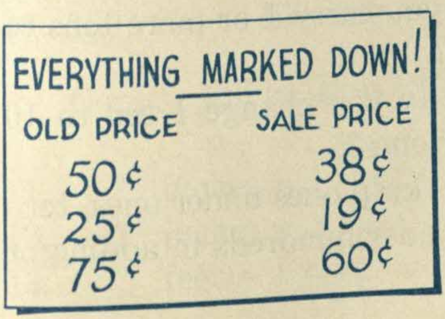
12 months = 1 year

about 52 weeks = 1 year

365 days = 1 year

about 4 weeks = 1 month

Sale Prices



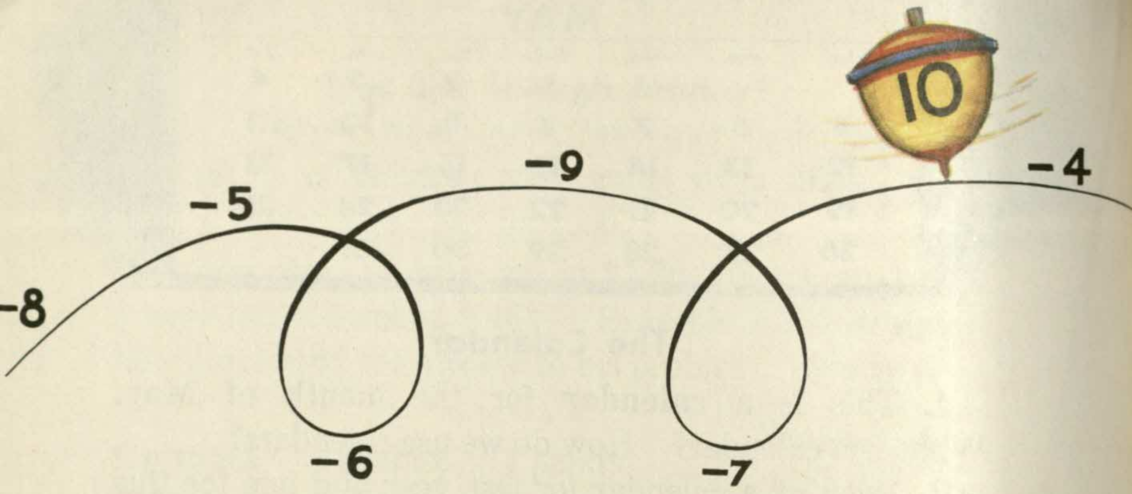
EVERYTHING MARKED DOWN!

OLD PRICE	SALE PRICE
50¢	38¢
25¢	19¢
75¢	60¢

1. Why do prices many times end in 0 or 5?

2. Which prices on the sign can be paid with only 1 coin?

★3. Why do prices many times end in 8 or 9?



Spin the Top

Keep the top spinning. The top in the picture has 10 on it. To keep it spinning, you say, "10 − 8 = 2, 10 − 5 = 5, 10 − 6 = 4, 10 − 9 = 1, 10 − 7 = 3, 10 − 4 = 6." If you miss an answer when you subtract, the top stops spinning.

Keep the top spinning. Subtract each number in the picture from each of these numbers on the top:

1. Use 14 on the top.
2. Use 11 on the top.
3. Use 13 on the top.
4. Use 12 on the top.
5. Use 18 on the top.
6. Use 16 on the top.
7. Use 17 on the top.
8. Use 15 on the top.

When and Why

(Review of ideas in carrying and changing)

1. In addition **when** do you carry 1 or more tens to the top of the tens' column?

2. In subtraction **when** do you change 1 ten to 10 ones and add it to the other ones?

3. Why must you always keep ones under ones, tens under tens, and hundreds under hundreds in adding or subtracting?

Review of Unit 3

Copy these examples and add:

	a	*b*	*c*	*d*	*e*	*f*
1.	\$2.22	\$2.01	\$2.42	\$3.82	\$1.33	\$5.04
	1.29	3.09	7.08	6.09	7.59	4.88
2.	124	355	745	736	167	548
	679	207	139	167	706	103

3. Check the above examples by adding up.

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*	*f*
4.	\$6.50	\$7.61	\$7.91	\$7.93	\$8.93	\$5.61
	4.22	5.03	7.72	4.64	5.65	1.54
5.	841	853	963	762	764	595
	235	347	839	533	226	348

6. Check the examples in **4** and **5** by adding.

Copy these examples. Add or subtract. Watch the signs.

	a	*b*	*c*	*d*
7.	57+95	57+74	\$ .48+\$.96	\$ .49+\$.79
8.	22+89	83+99	\$ .74+\$.68	\$ .67+\$.76
9.	145−76	144−57	\$1.23−\$.44	\$1.14−\$.26
10.	150−82	159−99	\$1.59−\$.70	\$1.32−\$.43

Copy. Fill in the missing numbers:

	a	*b*
11.	? inches = 1 yard	? days = 1 week
12.	? inches = 1 foot	? months = 1 year
13.	? feet = 1 yard	? weeks = 1 year

How Much Have You Learned?

(Chapter Test 5)

Read these numbers aloud:

	a	*b*	*c*	*d*
1.	310	605	879	511
2.	443	206	326	1,000

Copy these examples and add:

	a	*b*	*c*	*d*
3.	311+377	421+128	623+174	321+454
4.	303+689	557+105	222+759	315+367
5.	30+97	53+90	80+68	$.65+$.43
6.	65+67	27+77	29+86	$.34+$.96
7.	27+35+29	38+33+19	18+27+46	
8.	16+47+29	29+35+16	44+17+29	

Copy these examples and subtract:

	a	*b*	*c*	*d*
9.	919−307	921−501	980−900	498−427
10.	570−244	841−506	580−363	681−644

	a	*b*	*c*	*d*	*e*	*f*
11.	$\begin{array}{r}\$1.28\\ .33\\ \hline\end{array}$	$\begin{array}{r}\$1.16\\ .80\\ \hline\end{array}$	$\begin{array}{r}\$1.79\\ .87\\ \hline\end{array}$	$\begin{array}{r}\$1.41\\ .99\\ \hline\end{array}$	$\begin{array}{r}\$1.53\\ .54\\ \hline\end{array}$	$\begin{array}{r}\$1.60\\ .75\\ \hline\end{array}$

Copy these facts and write numbers or words in place of the question marks:

12. 1 yard = __?__ feet   1 yard = __?__ inches

13. 1 foot = __?__ inches   3 feet = 1 __?__

14. 1 week = __?__ days   1 year = about __?__ weeks

15. 1 year = __?__ months   1 month = about __?__ days

16. 1 year = __?__ days   1 month = about __?__ weeks

Improve Yourself Test: Subtraction Without Changing

Copy these examples and subtract. Check your work by adding.

	a	*b*	*c*	*d*	*e*	*f*	
1.	$ .67 .12	$ .48 .34	59 45	37 16	82 72	71 50	(96)
2.	$ .59 .01	$ .48 .04	37 3	26 3	19 9	74 4	(118 124)
3.	$4.79 3.62	$5.83 3.33	125 103	364 242	183 171	569 560	(177 180 182)
4.	$3.97 2.85	$4.28 3.17	539 417	464 251	575 342	686 463	

Improve Yourself Test: Subtraction with Zero

Copy these examples and subtract. Watch the zeros.

	a	*b*	*c*	*d*	*e*	*f*	
1.	$ .86 .20	$ .50 .20	97 47	47 42	13 10	76 56	(102)
2.	$ .93 .88	$ .60 .02	80 34	76 46	50 6	86 77	(153 154 138 139)
3.	$ .60 .52	$ .93 .74	90 89	43 35	40 6	31 4	
4.	$9.85 7.15	$2.47 2.40	845 812	699 692	829 326	631 331	(182)
5.	$7.69 6.29	$9.48 3.43	629 623	887 853	600 200	970 670	

CHAPTER

6

Multiplication and Division

UNIT 1 THE TWOS IN MULTIPLICATION

Two by Two

(Readiness for multiplication)

What fun! The children are all going to have a ride.

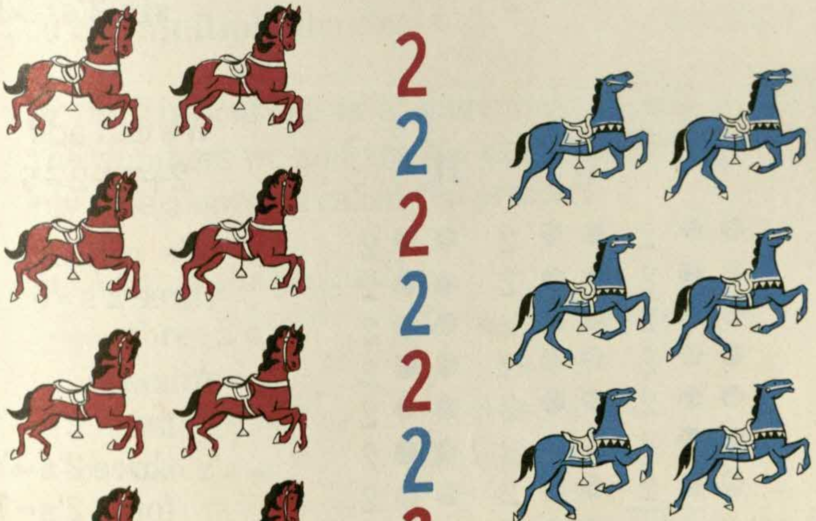
1. How many children can you see on the horses? Count them by twos.

2. How many other children are going to have a ride? Count them by twos.

3. How many children are there in all? Count them by twos.

4. How many horses are in a pair? How many pairs of horses are in the picture below?

5. Count these horses by twos. How many horses are in the picture?



Adding Twos

(Column addition background for multiplication)

1. Count the blue dots by 2's. This is how you would count in Example **E:** 2, 4, 6, 8, 10, 12 dots. Count the dots in the other columns in that way.

2. Now add all the 2's in each column. How is adding the 2's like counting by 2's?

A

● ● 2
● ● 2
4

two 2's=4

B

● ● 2
● ● 2
● ● 2
6

three 2's=6

C

● ● 2
● ● 2
● ● 2
● ● 2
8

four 2's=8

D

● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
10

five 2's=10

E

● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
12

six 2's=12

F

● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
14

seven 2's=14

G

● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
16

eight 2's=16

H

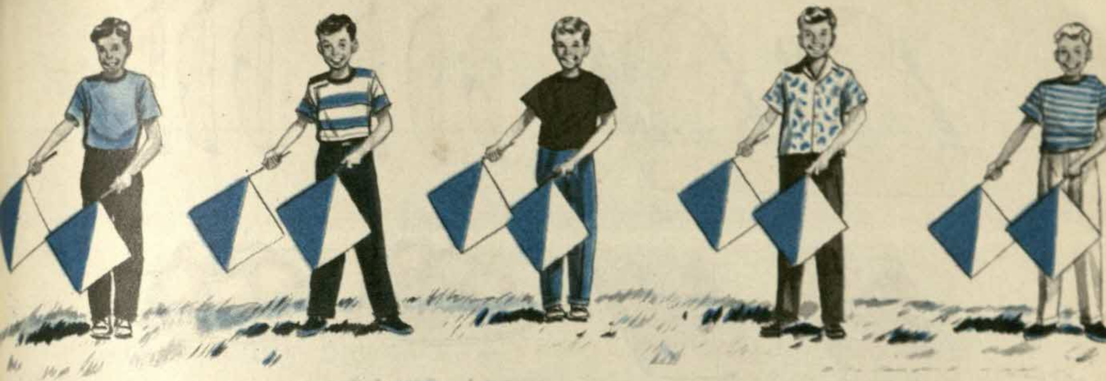
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
● ● 2
18

nine 2's=18

We can add:
2+2+2=6

We can say:
three 2's=6

Answer:
two 2's=?
three 2's=?
four 2's=?
five 2's=?
six 2's=?
seven 2's=?
eight 2's=?
nine 2's=?



Two Flags for Each Boy

(Meaning of multiplication)

Five boys wanted to learn how to talk to one another with flags. Each boy needed two flags.

1. If you had to give out flags so that 5 boys would each get 2 flags, how would you know how many flags you would need?

You can count by twos: 2, 4, 6, 8, 10
You can add the 2's: $2 + 2 + 2 + 2 + 2 = 10$
You can **multiply** the 2's: five 2's = 10

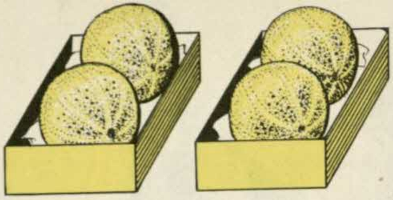
▶ **Multiplication** is a short way to add when all the numbers we add are the same. When we multiply, the answer is called the **product.**

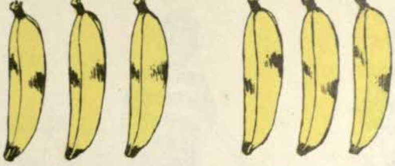
2. What is the product?

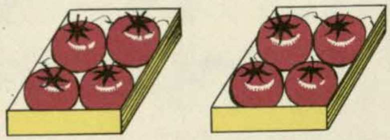
a. three 2's = ?
b. six 2's = ?
c. four 2's = ?
d. two 2's = ?
e. seven 2's = ?
f. nine 2's = ?
g. five 2's = ?
h. eight 2's = ?

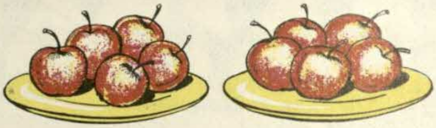
⋆**3.** Act out multiplying 2's. Use sheets of paper for flags. Show how many flags you would need if you give 2 flags each to:

a. four boys
b. six boys
c. seven boys
d. nine boys









Two of Each

(Review of addition doubles)

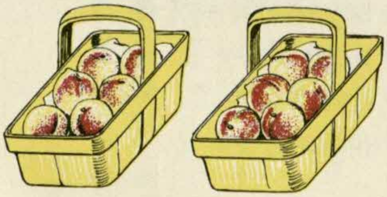
1. Tell which picture goes with each addition fact:

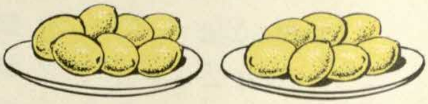
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
2	3	4	5	6	7	8	9
2	3	4	5	6	7	8	9
4	6	8	10	12	14	16	18

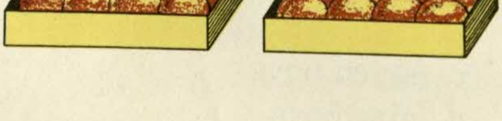
2. Why are the above addition facts called the "doubles"? What does "double" mean?

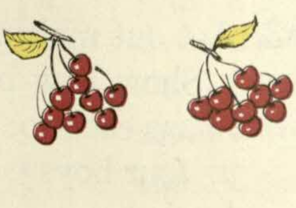
3. Look at the pictures on this page again. Tell which picture goes with each fact:

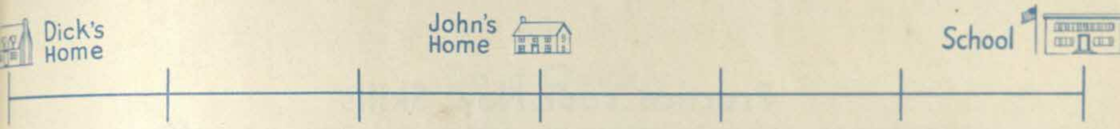
a. two 4's = 8
b. two 7's = 14
c. two 3's = 6
d. two 5's = 10
e. two 2's = 4
f. two 8's = 16
g. two 6's = 12
h. two 9's = 18











Two Times as Far

(Multiplication by 2)

1. Look at the number line at the top of the page. How many blocks away from school does John live? How many blocks away from school does Dick live?

2. Sometimes Dick and John walk home from school together. How far do they walk to get to John's home? After they get that far, how many blocks does Dick have to walk to get home?

3. Answer these questions "Yes" or "No." Does the number line at the top of the page show that:

a. 3 blocks + 3 blocks = 6 blocks?
b. two 3's = 6?
c. Dick first walks 3 blocks from school to John's house and then 3 blocks to his own home?
d. Dick lives **2 times** as far from school as John does?

▶ The sign × is read **times.** It tells us to **multiply.**

Addition	**Three Ways to Write Multiplication**		
1+1=2	two 1's=2	2 times 1=2	2×1=2
2+2=4	two 2's=4	2 times 2=4	2×2=4
3+3=6	two 3's=6	2 times 3=6	2×3=6
4+4=8	two 4's=8	2 times 4=8	2×4=8
5+5=10	two 5's=10	2 times 5=10	2×5=10
6+6=12	two 6's=12	2 times 6=12	2×6=12
7+7=14	two 7's=14	2 times 7=14	2×7=14
8+8=16	two 8's=16	2 times 8=16	2×8=16
9+9=18	two 9's=18	2 times 9=18	2×9=18

Practice Your New Skills

Copy these examples and write the answers. Check your work.

	a	*b*	*c*	*d*	*e*
1.	90 − 56	54 − 49	32 + 99	67 − 18	84 − 17
2.	91 − 69	87 − 38	61 − 28	58 − 52	27 + 47
3.	75 − 36	48 + 29	80 − 36	57 + 19	73 − 69
4.	65 − 36	81 − 49	73 − 49	42 + 29	96 − 49
5.	43 − 19	51 + 19	68 + 14	72 + 18	60 − 39

Do what the words say. Write your work.

	a	*b*
6.	Add 58 to 19.	Subtract: 43 − 28
7.	Take 48 from 90.	Multiply: 2 times 7
8.	Subtract 16 from 84.	Subtract 27 from 51.
9.	Find 39 plus 15 plus 18.	Subtract 8 from 91.
10.	Find 93 minus 56.	Take 63 from 84.
11.	Add 32 and 48.	Multiply: 2 times 9
12.	Subtract 33 from 51.	Subtract: 48 minus 23
13.	Take 42 from 81.	Multiply: 2 times 6

Magic Squares

1. Add the numbers in each row from left to right.

2. Add the numbers in each column from the top to the bottom.

3. Add the numbers from corner to corner.

4. If all the sums for one square are the same, you have a **magic square.** Are these magic squares?

A

2	5	7
8	3	3
4	6	4

B

8	5	8
7	7	7
6	9	6

C

29	34	21
19	29	36
36	21	27

Do It Quickly

Try to get the right answers without paper and pencil:

1. There were 15 children playing a game in the park. Six went home. How many were left?

2. Tom earned 8¢ helping his mother and 5¢ helping his big sister. How much did Tom earn all together?

3. Fred bought 2 pencils. Each pencil cost 4¢. How much did he pay for the 2 pencils?

4. Helen's mother bought a dozen (12) flowers. She put 7 of them in one vase. How many flowers were left to put in a second vase?

5. Yesterday Jim had 8 problems right on a test. Today he had 14 problems right. How many more did he have right today than yesterday?

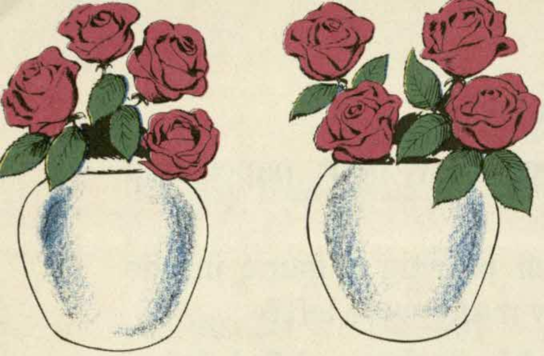
6. There are 7 days in 1 week. How many days are there in two weeks?

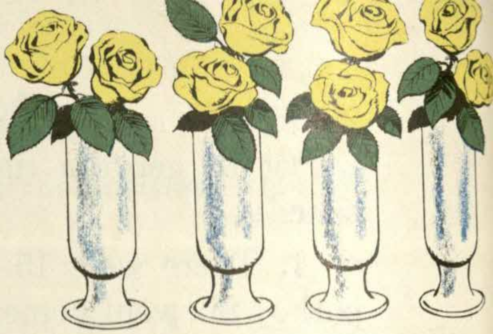
7. Mary lives 12 blocks from the post office. Jane lives 8 blocks from the post office. How much farther from the post office does Mary live than Jane?

8. Helen bought a game for 7¢. She gave the clerk a dime. How much change should she get?

9. Tom paid 9¢ for a notebook, 5¢ for a pencil, and 4¢ for an eraser. How much did he pay for all three things?

	a	*b*	*c*	*d*	*e*
10.	60+27	50+25	50+30	32+40	32+8
11.	80−60	87−37	91−20	65−35	84−9
12.	78−68	63−33	54−50	78−38	57−9
13.	85−25	97−34	78−64	27−17	37−8





Pairs of Multiplication Facts

1. Look at the pictures of the flowers. The red flowers fit one multiplication fact below. The yellow flowers fit the other fact. Which fact fits each picture? Why?

4×2 flowers = 8 flowers 2×4 flowers = 8 flowers

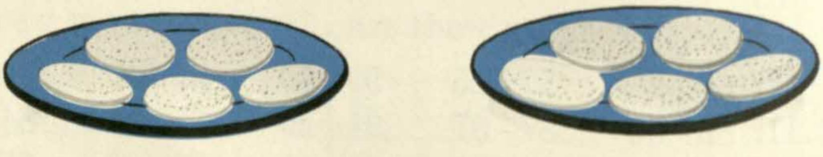
2. Look at the picture of the cookies. The cookies on the blue plates fit one fact below. The cookies on the yellow plates fit the other fact. Which picture fits each fact? Why?

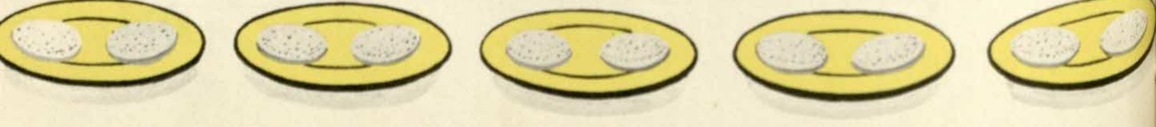
2×5 cookies = 10 cookies

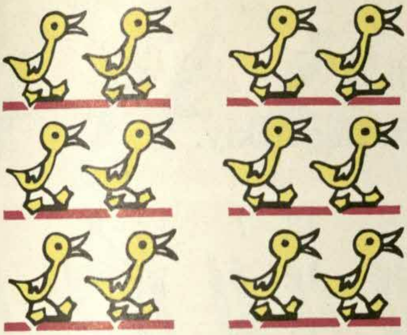
5×2 cookies = 10 cookies

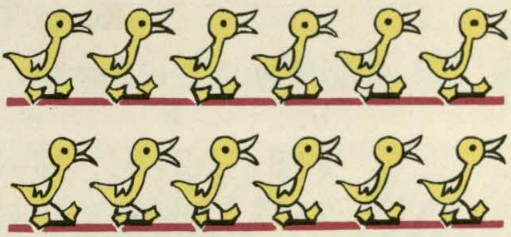
3. How many red flowers are there all together? How many yellow flowers are there all together? Do the two multiplication facts have the same or different products?

4. How many cookies are on the blue plates? How many cookies are on the yellow plates? Do 2×5 and 5×2 have the same or different products?









5. Explain the two pictures above. How are they the same? How are they different?

$$2 \times 6 = 12$$

$$6 \times 2 = 12$$

In these two facts, the same two numbers are multiplied. The two facts have the same products but tell different stories.

★6. Show that it takes the same number of pencils to make 2 groups of 7 each as it takes to make 7 groups of 2 each.

Something to Draw

(Pictures of multiplication facts)

Draw pictures as you are told below. Under each picture write the mutiplication fact that it shows.

1. Draw 6 circles. Put 2 marbles in each circle.

2. Draw 4 tables. Put 2 chairs at each table.

3. Draw 8 baskets. Put 2 apples in each basket.

4. Draw 7 rows of pennies with 2 pennies in each row.

5. Draw 2 circles. Put 6 marbles in each circle.

6. Draw 2 tables. Put 4 chairs at each table.

7. Draw 2 baskets. Put 8 apples in each basket.

8. Draw 2 rows of pennies with 7 pennies in each row.

★9. Use real things and act out some of your pictures.

Keep Your Skill

Write only the answers. Write them quickly.

	a	*b*	*c*	*d*	*e*	*f*
1.	3+9	2+9	13−5	12−5	13−7	12−3
2.	7+7	9−9	10−3	11−4	12−7	14−9
3.	7+4	2×8	14−5	11−6	11−9	10−8
4.	5+6	4×2	11−3	14−7	13−6	14−6
5.	5+7	13−8	11−5	12−6	11−7	15−8
6.	7+5	11−2	13−4	13−9	12−4	9×2
7.	93−2	78−3	64−4	73−5	34−5	46−7

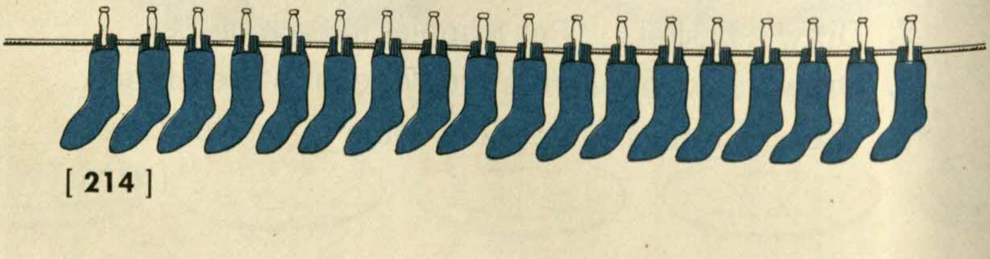
Copy these examples and subtract:

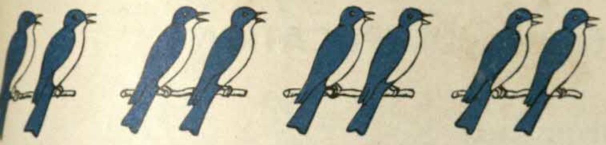
	a	*b*	*c*	*d*
8.	789−539	33−29	94−45	$1.43−$.45
9.	945−303	98−29	71−59	$1.69−$.89
10.	595−425	60−29	64−39	$1.26−$.69
11.	634−503	83−65	97−69	$1.94−$.56
12.	495−377	91−63	47−19	564−258
13.	366−249	82−75	58−34	753−406

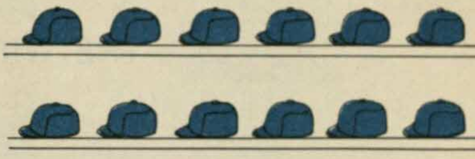
Make Pairs and Other Groups

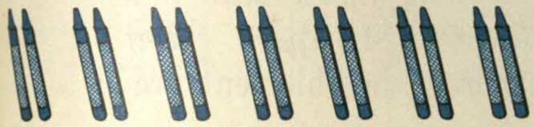
1. Play you are taking the socks off the line. Play you are putting them in pairs. Write all the multiplication facts you can make about pairs of socks.

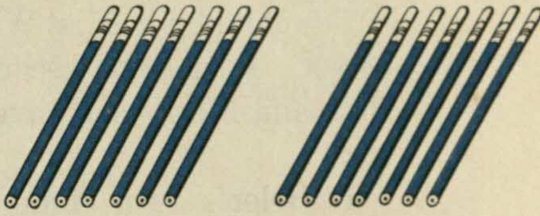
★**2.** Play you take the socks off the line again. Do not make pairs this time. Make groups to show all the other multiplication facts you know.











Review of Unit 1

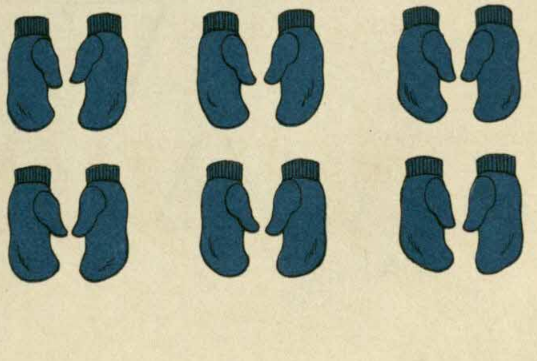
1. Count from 2 to 50 by twos. Then count backward from 50 to 2.

2. Tell which picture on this page goes with each number fact below:

a. two 4's = 8
b. $7 + 7 = 14$
c. $2 \times 6 = 12$
d. $2 + 2 + 2 + 2 + 2 + 2 = 12$
e. seven 2's = 14
f. $4 \times 2 = 8$

3. Copy these multiplication examples. Write the products.

a. two 3's = ?
b. two 9's = ?
c. two 4's = ?
d. two 8's = ?
e. two 5's = ?
f. six 2's = ?
g. seven 2's = ?
h. $2 \times 2 = ?$
i. $2 \times 6 = ?$
j. $3 \times 2 = ?$
k. $9 \times 2 = ?$
l. $2 \times 7 = ?$
m. $4 \times 2 = ?$
n. $8 \times 2 = ?$
o. $5 \times 2 = ?$



UNIT 2 THE THREES IN MULTIPLICATION

Three Each

(Introduction to multiplication of threes)

The children in Miss White's room were making little books. Each child needed 3 sheets of paper. Helen, Bob, and Mary each gave paper to the children in one row.

1. Helen's turn came first. She said, "I need 3 sheets for Tom and 3 for Dick. That's 6. I need 3 for Jane. That's 9. And I need 3 for myself. That makes 12 sheets in all for my row."

Helen **added:** $3 + 3 + 3 + 3 = 12$	Write a multiplication fact that would mean the same thing.

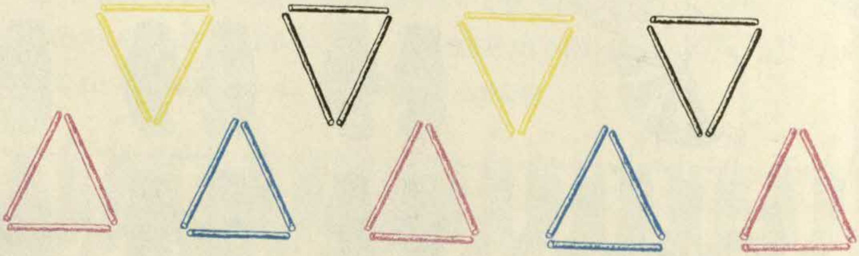
2. Bob's turn came next. There were 5 children in his row. He counted by 3's this way: 3, 6, 9, 12, 15. Then he got 15 sheets of paper and gave them out.

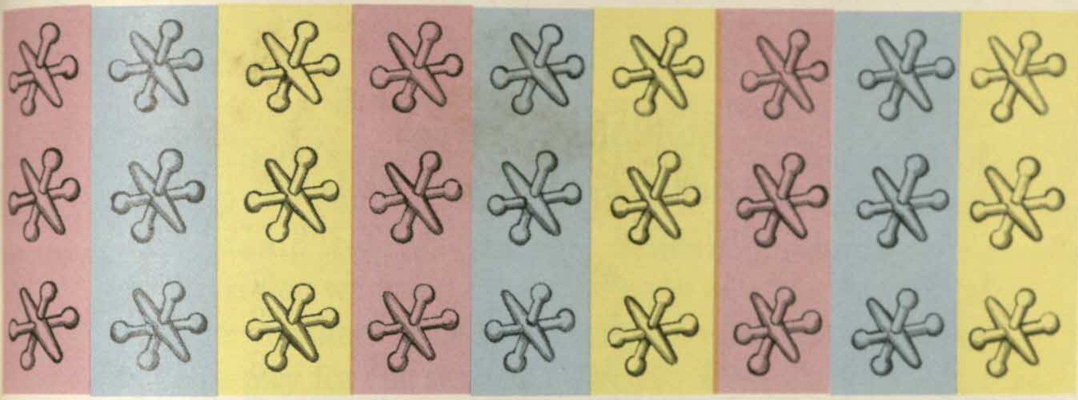
Bob **counted** by 3's: 3, 6, 9, 12, 15	Write a multiplication fact that shows how many sheets of paper Bob needed.

3. Then Mary's turn came. There were 6 in her row, counting herself. She said to herself, "I know that six 3's are 18. I need 18 sheets of paper."

Mary **multiplied:** 6×3. She knew that $6 \times 3 = 18$.

4. What multiplication fact does this picture show?





Count the Jacks

(Counting by threes)

1. Cover all the jacks in the picture with a sheet of paper. Be sure that they are all covered.

2. Move the paper to the right so that only 3 jacks show. How many 3's are showing?

3. Move the paper again so that 3 more jacks show. How many 3's are showing now? How many jacks in all are showing? Two 3's = ?

4. Keep moving the paper to the right to show each fact below. Say the products.

a. Three 3's = ?
b. Four 3's = ?
c. Five 3's = ?
d. Six 3's = ?
e. Seven 3's = ?
f. Eight 3's = ?
g. Nine 3's = ?

★**5.** Count by 3's as far as 99. Count by saying or by writing the numbers. Start this way: 3, 6, 9, and so on.

Time for Practice

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*
1.	93 − 78	81 − 62	63 − 35	71 − 43	90 − 63
2.	61 − 26	94 − 57	71 − 24	93 − 39	72 − 65
3.	63 − 37	72 − 44	82 − 67	92 − 63	91 − 77
4.	85 − 48	94 − 58	20 − 17	51 − 38	60 − 29
5.	86 − 67	65 − 26	75 − 47	96 − 78	76 − 29

Multiplying Threes

1. Copy and add the columns of 3's below. Then copy the multiplication examples. Give the products.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
3	3	3	3	3	3	3	3
3	3	3	3	3	3	3	3
?	3	3	3	3	3	3	3
	?	3	3	3	3	3	3
		?	3	3	3	3	3
			?	3	3	3	3
				?	3	3	3
					?	3	3
						?	3
							?

two 3's = ?
three 3's = ?
four 3's = ?
five 3's = ?

six 3's = ?
seven 3's = ?
eight 3's = ?
nine 3's = ?

2. When we put groups of 3's together, we can find the total by:

counting by 3's **adding** 3's **multiplying** 3's

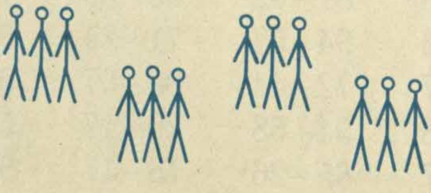
3. What do we call the answer in addition? In subtraction? In multiplication?

4. Study the multiplication facts at the left and right. Practice saying them and writing them.

two 3's=6
three 3's=9
four 3's=12
five 3's=15
six 3's=18
seven 3's=21
eight 3's=24
nine 3's=27

2 × 3=6
3 × 3=9
4 × 3=12
5 × 3=15
6 × 3=18
7 × 3=21
8 × 3=24
9 × 3=27

5. What multiplication fact does this picture show?



Buying Three-Cent Stamps

1. Helen's mother wrote 4 letters. What kind of stamp will she need for each letter? How can you tell a 3¢ stamp from a 2¢ stamp? From a 1¢ stamp?

2. Helen went to the post office to buy four 3¢ stamps for her mother. She knew that she would need to take 12¢ to pay for the stamps. Why? Four 3's = ?

3. Write the multiplication facts which show how much you have to pay for:

a. six 3¢ stamps.
b. two 3¢ stamps.
c. five 3¢ stamps.
d. four 3¢ stamps.
e. nine 3¢ stamps.
f. eight 3¢ stamps.
g. seven 3¢ stamps.
h. three 3¢ stamps.

Bob uses the products he knows to help him get the products he does not know. This is how he does it. Bob knows that $5 \times 3 = 15$. He knows that 6×3 will be **3 more** than 5×3. He says, "$15 + 3 = 18$. So $6 \times 3 = 18$."

Bob knows that 4×3 will be **3 less** than 5×3. He says, "$15 - 3 = 12$. So $4 \times 3 = 12$."

Bob will not need to use this way of finding products after he has learned the products well.

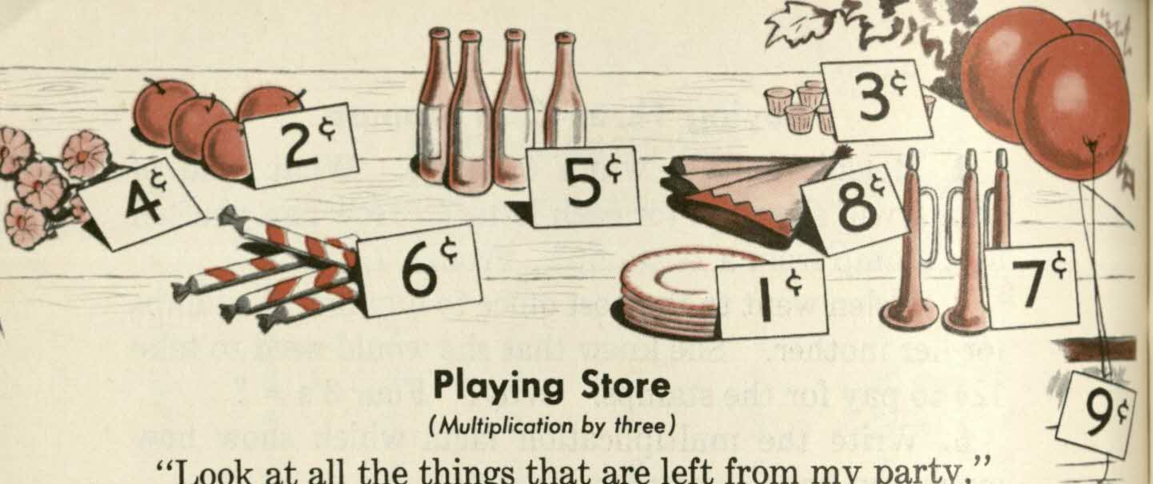
Keep Your Skill

Write only the answers. Subtract in your head.

	a	*b*	*c*	*d*	*e*
1.	92−70	47−46	99−80	91−30	16−10
2.	35−33	93−20	60−40	95−40	59−56

Copy these examples and write the answers:

	a	*b*	*c*	*d*
3.	43+29+47	125+609	924−705	461−32
4.	29+30+74	153+709	933−218	259−30



Playing Store

(Multiplication by three)

"Look at all the things that are left from my party," said Jane. "We are going to play store with them."

Ted bought 3 horns. Jane and Ted knew that he should pay 21¢, but they got the answers in different ways.

Jane thought, "7¢ and 7¢ are 14¢, and 7¢ more are 21¢."

$$\begin{array}{r} 7¢ \\ 7¢ \\ \underline{7¢} \\ 21¢ \end{array}$$

Ted thought, "3 times 7¢ equals 21¢."

$3 \times 7¢ = 21¢$

1. Which way is quicker, Jane's way or Ted's way?

2. Study the picture. Find the cost of:

a. 3 hats.
b. 3 balloons.
c. 3 paper flowers.
d. 3 cups.
e. 3 paper plates.
f. 3 apples.
g. 3 candy sticks.

3. If you know the product of 7 × 3, you can tell the product of 3 × 7. How?

three 2's=6
three 3's=9
three 4's=12
three 5's=15
three 6's=18
three 7's=21
three 8's=24
three 9's=27

4. Study these multiplication facts. Practice saying them and writing them.

5. Close your book. Write all the multiplication facts with 3 in them.

3×2=6
3×3=9
3×4=12
3×5=15
3×6=18
3×7=21
3×8=24
3×9=27

Multiplication Pictures

1. Draw pictures of strings of beads to show that three 6's are 18.

a. How many strings should you draw?
b. How many beads should be on each string?
c. How many beads will there be in all?

2. Bob is going to draw a picture of trees for the fact $3 \times 7 = 21$.

a. How many equal groups should he draw?
b. How many trees should he put in each group?
c. How many trees should he draw all together?

3. In $6 \times 3 = 18$,

a. Which number tells you how many groups to draw?
b. Which number tells you how many to put in each group?

4. Change $3 \times 8 = 24$ to an addition example.

a. What does the 3 tell you to do?
b. What does the 8 tell you?
c. What does the 24 tell you?

5. Tell a story or draw a picture for each of these examples. Copy the examples and write the products.

a. $3 \times 7 = ?$
b. $9 \times 3 = ?$
c. $3 \times 9 = ?$
d. $7 \times 3 = ?$
e. $3 \times 4 = ?$
f. $2 \times 8 = ?$
g. $3 \times 6 = ?$
h. $6 \times 2 = ?$
i. $8 \times 3 = ?$
j. $7 \times 2 = ?$
k. $6 \times 3 = ?$
l. $5 \times 3 = ?$

Do You Remember?

Copy these facts and write your answers in place of the question marks.

1. 1 ft. = ? in. **2.** 1 yd. = ? in. **3.** 1 yd. = ? ft.
4. 1 wk. = ? da. **5.** 1 doz. = ? **6.** V = ?
7. X = ? **8.** IX = ? **9.** VI = ?

Planting the Garden

(Multiplication, addition, subtraction)

Do these problems without writing:

1. How many bulbs do you need to buy to plant 3 pots and put 4 bulbs in each pot?

2. How many small plants will you need to buy to plant 2 rows with 9 plants in a row?

3. Ann planted 18 plants in one group and 11 in another group. How many more plants were in the first group than in the second?

4. Mary planted 7 bulbs in one pot and 10 in another. How many more did she plant in one pot than in the other?

5. Helen paid 25¢ for one box of tomato plants and 30¢ for another. How much did both boxes cost?

6. Ann bought 6 packages of seeds at 2¢ a package. How much did her seeds cost?

7. Two packages of seed that Ann wanted cost 26¢. Ann had only 20¢. How much more money did she need?

8. Joe planted 8 rows of potatoes. Jim planted 6 rows. How many rows did Joe and Jim plant together?

Write the Answers

Multiply these numbers. Write only the products.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	2×5	2×7	3×5	7×2	9×2	7×3	2×8
2.	2×2	3×3	4×2	2×3	3×4	2×4	5×2
3.	6×2	2×6	4×3	6×3	5×3	8×3	3×6
4.	9×3	3×2	2×9	3×7	3×9	8×2	3×8

Do It Quickly

When the examples are easy, we can add without writing. We need to be very careful. Try to add these numbers without writing. If you cannot add well that way, write your work.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	200	370	203	346	210	207	101	280	402
	610	607	430	500	408	680	790	706	120
2.	390	250	300	53	56	46	73	70	32
	503	505	441	70	61	80	66	40	76

If we know how to subtract well, we can do easy examples without writing. Try to do the examples below without writing. If you need to, copy the examples before you subtract.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
3.	102	103	159	168	165	177	105	153	102
	40	90	70	70	80	90	50	90	20
4.	157	149	138	136	124	115	137	109	179
	80	80	70	50	30	54	42	68	87

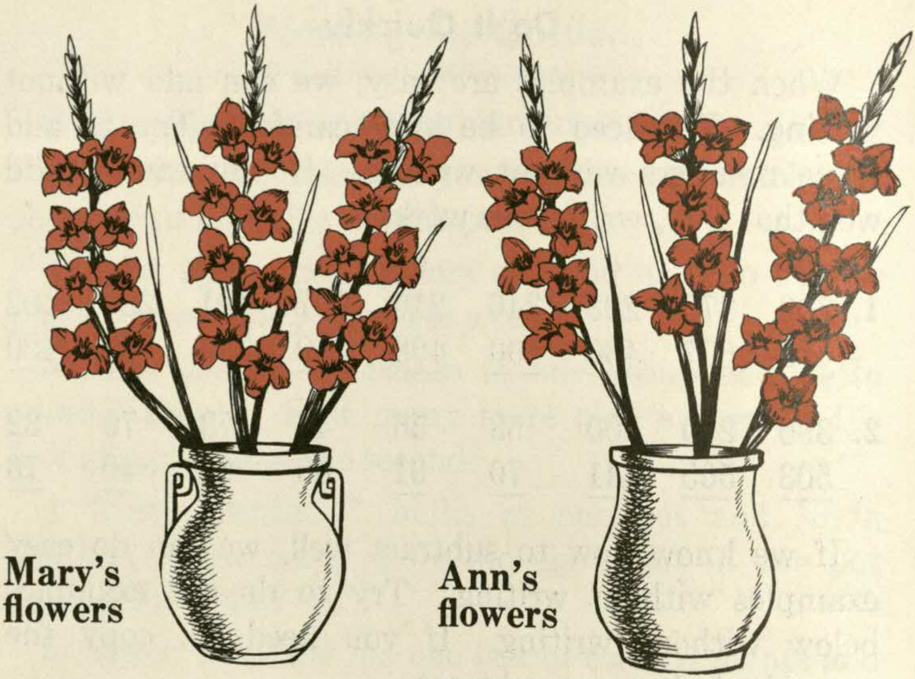
Time for Practice

1. Copy these examples and add:

a. 93 + 88 + 40 + 57 *d.* 96 + 74 + 59 + 70
b. 73 + 60 + 99 + 19 *e.* 27 + 17 + 39 + 59
c. 44 + 88 + 79 + 77 *f.* 58 + 23 + 32 + 63

2. Copy these examples and subtract:

a. 143 − 68 *d.* 112 − 77 *g.* 124 − 35 *j.* 166 − 99
b. 111 − 87 *e.* 125 − 67 *h.* 116 − 48 *k.* 136 − 57
c. 130 − 64 *f.* 117 − 29 *i.* 140 − 49 *l.* 154 − 67



When to Multiply

(Contrast of addition and multiplication)

1. How many stems of flowers does Mary have? How many flowers are on each stem? How many flowers does Mary have in all?

2. Did you add or multiply to find the answer to Problem **1**? Write the addition way to find the answer. Write the multiplication way. Which is quicker?

3. How many stems of flowers does Ann have? How many flowers are on the first stem? The second stem? The third stem? How many flowers does Ann have in all?

4. Did you add or multiply to find the answer to Problem **3**? Tell why. Write the example with the answer.

Finding the Cost of All

You should **add** or **multiply** in each of these problems. Write your work.

1. Toy cars cost 9¢. Jim bought 3 cars. All the cars were the same price. Can you multiply to find the answer? How much did he pay for the 3 cars?

2. Tom bought 3 notebooks. He paid 4¢ for one, 6¢ for another, and 10¢ for another. How much did he pay for all of them? Do you multiply or add? Why?

3. Candy bars cost 5¢ each. How much do 3 cost?

4. Seven children went to the store to buy pencils. They bought one pencil each. Each pencil cost 2¢. How much did the 7 pencils cost?

When you buy more than one thing and want to find the cost of all of them, you must either add or multiply.

If all the things you buy have the same price, you may either add or multiply. It is quicker to multiply.

If the prices are not the same, you must add to find the cost of all.

Working with Pairs

(Multiplication practice)

1. How many shoes are there in a pair? How many socks are there in a pair? How many gloves?

2. Name some things that come in pairs.

3. How many shoes are there in 3 pairs? 4 pairs? 9 pairs? 5 pairs? 8 pairs?

How Well Can You Work Problems?

(Problem Test 6)

1. In one schoolroom 6 children sit at each table. How many children are there at 3 tables?

2. In another room there are 8 children in one row, 7 in another row, and 9 in another row. How many children are there in the three rows?

3. Nine children have seats in one row. Only 4 of the children are in their seats. How many are not in their seats?

4. Mary planted 2 rows of flower bulbs. She put 9 bulbs in one row and 6 in the other row. How many bulbs did Mary plant in both rows?

5. Helen planted 2 rows of bulbs. She planted 9 bulbs in each row. How many bulbs did Helen plant?

6. Ann planted 17 flower bulbs. Bill planted only 8 bulbs. How many more did Ann plant?

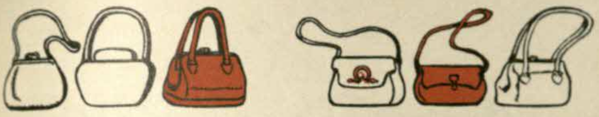
7. One quart of milk will make 4 glasses of milk. How many glasses of milk will 3 quarts make?

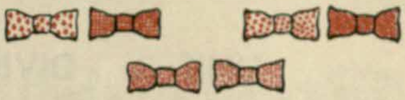
8. Jane picked 3 bunches of flowers. She had 9 flowers in one bunch, 12 in another, and 8 in another. How many flowers did she pick?

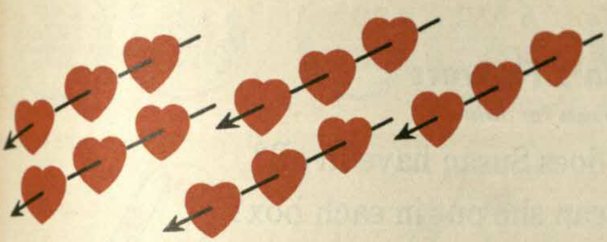
9. Tom bought 3 bars of soap at 9¢ a bar. How much did Tom pay for the 3 bars of soap?

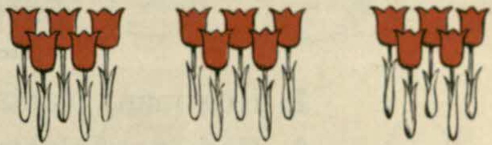
10. Carl had 15¢. He spent 8¢ for candy. How much did he have left?

★11. Make up problems like those above. Use these numbers: 3×7; 9×8; 3×8; $4 + 5 + 7$; $16 - 7$









Review of Unit 2

1. Count by threes to 60. Begin with 3. Next begin with 60 and count backward to 3.

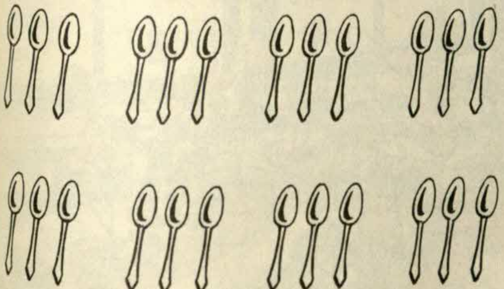
2. Tell which picture on this page goes with each number fact below:

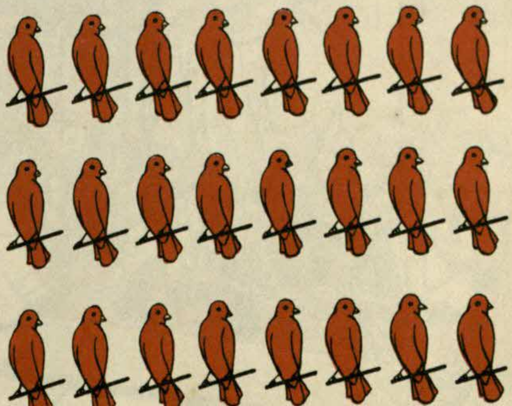
a. $2 \times 3 = 6$
b. $5 \times 3 = 15$
c. $2 + 2 + 2 = 6$
d. $8 + 8 + 8 = 24$
e. eight 3's = 24
f. three 5's = 15

3. Look at each fact above. Tell the same fact another way, but be sure it still fits the same picture.

4. Copy the examples below. Close your book and write the products.

a. three 3's = ?
b. six 3's = ?
c. three 9's = ?
d. seven 3's = ?
e. three 4's = ?
f. $8 \times 3 = ?$
g. $3 \times 4 = ?$
h. $2 \times 3 = ?$
i. $3 \times 7 = ?$
j. $9 \times 3 = ?$
k. $4 \times 3 = ?$
l. $5 \times 3 = ?$
m. $3 \times 8 = ?$
n. $3 \times 6 = ?$
o. $3 \times 2 = ?$





UNIT 3 DIVISION

Susan's Flowers

(Readiness for division)

1. How many plants does Susan have in all?

2. How many plants can she put in each box?

3. Susan has filled one box. How many plants are left outside? 12 − 4 = ?

4. When Susan fills the next box, how many plants will be left outside? 8 − 4 = ?

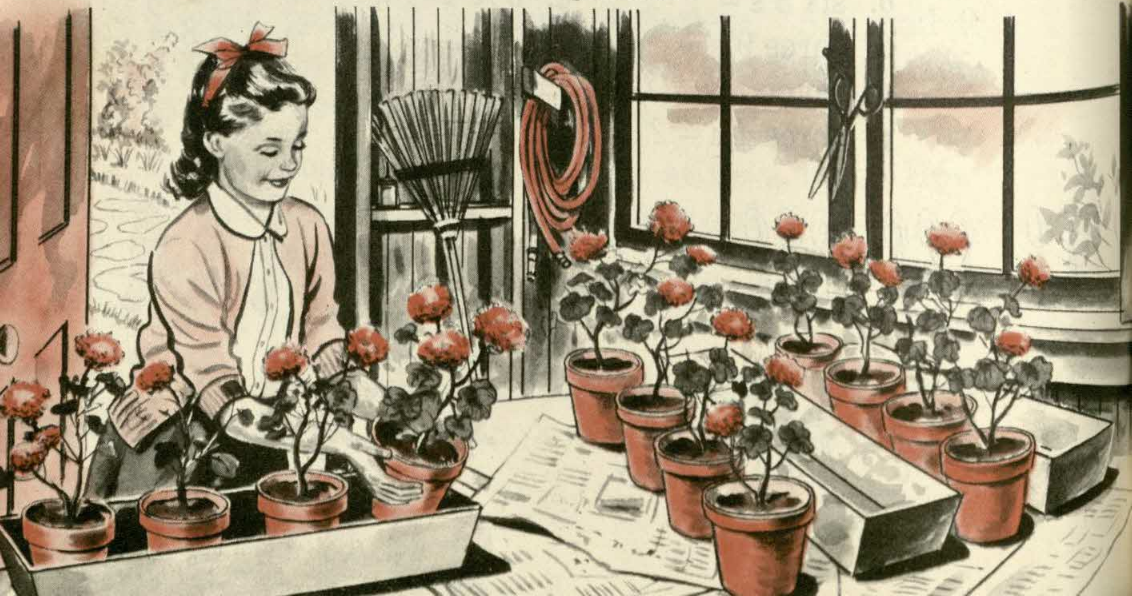
5. When Susan fills the third box, how many plants will be left outside? 4 − 4 = ?

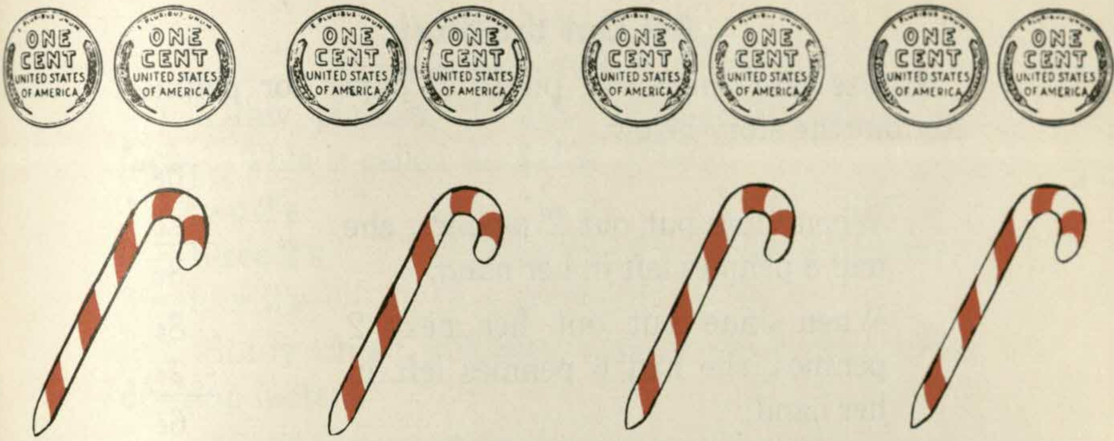
6. How many 4's are there in 12?

7. Draw 12 X's in a row on your paper. Draw rings around 4 X's at a time. Show that 12 = three 4's.

★**8.** Draw 12 X's again. Cross out 3 X's at a time. How many 3's are there in 12? Play that Susan had 12 plants and wanted to put 3 in each box. How many boxes would she need?

★**9.** If Susan put 2 plants in each box, how many boxes would she need for 12 plants?




ONE CENT UNITED STATES OF AMERICA

Selling Candy Canes

(Introduction to division)

Bob's father has a candy store. Sometimes Bob helps in the store. One day Mary and Jane went into the store to buy some candy canes. Mary said, "I have 8¢ to spend. How many candy canes can I buy?"

Bob said, "Candy canes cost 2¢ each. Every time you put out 2 pennies, I will give you a candy cane."

Mary put out her pennies in twos. You can see them in the picture. Bob put a cane with each two pennies.

1. How many canes did Mary get for her 8 pennies? How many 2's are there in 8?

2. Jane had 10 pennies. On your paper draw a picture to show how many candy canes Jane could buy. 10 = how many 2's?

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Act Out the Story

1. Use play money or pieces of paper for pennies. Act out the story below.

When Jane put out 2 pennies, she had 8 pennies left in her hand.

$$\begin{array}{r}10\text{¢}\\ -2\text{¢}\\ \hline 8\text{¢}\end{array}$$

When Jane put out her next 2 pennies, she had 6 pennies left in her hand.

$$\begin{array}{r}8\text{¢}\\ -2\text{¢}\\ \hline 6\text{¢}\end{array}$$

When Jane put out her next 2 pennies, she had 4 pennies left in her hand.

$$\begin{array}{r}6\text{¢}\\ -2\text{¢}\\ \hline 4\text{¢}\end{array}$$

When Jane put out her next 2 pennies, she had 2 pennies left in her hand.

$$\begin{array}{r}4\text{¢}\\ -2\text{¢}\\ \hline 2\text{¢}\end{array}$$

When Jane put out her last 2 pennies, she had 0 pennies left.

$$\begin{array}{r}2\text{¢}\\ -2\text{¢}\\ \hline 0\text{¢}\end{array}$$

2. If you have 10 pennies and subtract 2 at a time, how many times can you subtract 2 pennies? How many 2's are there in 10?

3. You subtracted to find how many candy canes Jane could buy. You can **divide** to find the same thing. You can see below that division is quicker.

Subtraction		Division
$10 - 2 = 8$	$4 - 2 = 2$	10 = five 2's
$8 - 2 = 6$	$2 - 2 = 0$	
$6 - 2 = 4$		

▶ There is a quick way to subtract the same number many times. It is called **division.**

Dividing by Twos

(Reading and writing division; table of twos)

1. Draw pictures to show each of these division facts. This is called the **table of twos.**

$4 =$ two 2's
$6 =$ three 2's
$8 =$ four 2's
$10 =$ five 2's
$12 =$ six 2's
$14 =$ seven 2's
$16 =$ eight 2's
$18 =$ nine 2's

2. Study these different ways to read and write division facts:

There are six 2's in 12. $12 =$ six 2's
12 divided by $2 = 6$. $12 \div 2 = 6$

▶ When you read the sign ÷ you say **divided by.**
▶ The answer in division is called the **quotient.**

We can read and write division questions like this:

How many 2's are there in 12?
$12 =$ how many 2's?
12 divided by 2 equals what?
$12 \div 2 = ?$

3. In $14 \div 2 = 7$, which number is the quotient?

4. Write the whole table of two's this way: $4 \div 2 = 2$.

5. Copy these examples. Close your book. Finish the examples.

a. $18 \div 2$
b. $14 \div 2$
c. $10 \div 2$
d. $8 \div 2$
e. $6 \div 2$
f. $16 \div 2$
g. $12 \div 2$
h. $4 \div 2$

6. Look at page 228. Write the story about Susan's plants two ways: *a.* Write it as subtraction. *b.* Write it as division.

7. Look at Problem **1** on page 229. Write the story about Mary's candy canes: *a.* As subtraction. *b.* As division.

Pairs of Division Facts

(Related division facts)

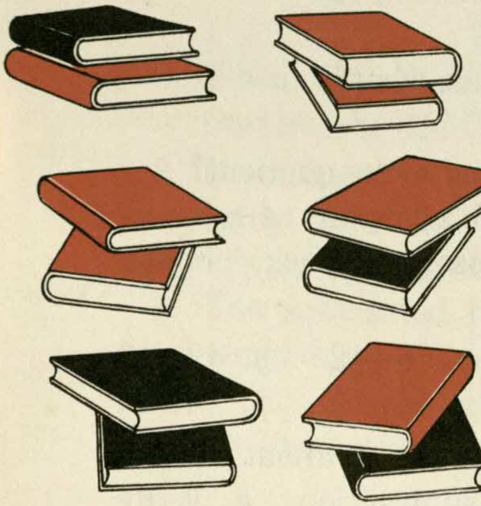
1. Candy bars cost 5¢ each. How many can you buy for 10¢?

Draw 10 pennies. Draw a ring around 5 of them and another ring around the other five. How many 5's are there in 10? How many 5¢ candy bars can you buy for 10¢? Your picture shows this division fact: 10 ÷ 5 = 2.

2. Draw a picture of 10 pennies. Group them by 2's instead of by 5's. How many 2's are there in 10? 10 ÷ 2 = ?

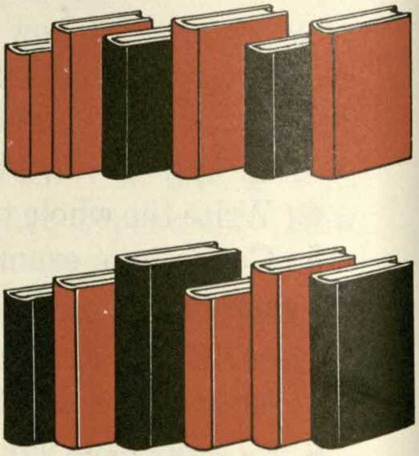
Here are pictures to show a **pair of division facts:**

A



12 ÷ 2 = 6

B



12 ÷ 6 = 2

3. How many 2's are there in 12? How many 6's are there in 12?

Division Pictures and Stories

(Table of related facts for division by two)

1. Draw one picture for each of these stories. Be sure that the picture fits the story.

a. Mary had 8 flowers. She put 4 flowers in each of 2 vases.

b. Mary had 8 flowers. She put 2 flowers in each of 4 vases.

2. Draw a pair of pictures for each of these pairs of facts. Write the correct division fact under each picture.

a. $14 \text{ canes} \div 2 \text{ canes} = 7$
$14 \text{ canes} \div 7 \text{ canes} = 2$

b. $10 \text{ tops} \div 5 \text{ tops} = 2$
$10 \text{ tops} \div 2 \text{ tops} = 5$

c. $6 \text{ balls} \div 2 \text{ balls} = 3$
$6 \text{ balls} \div 3 \text{ balls} = 2$

> The number without a name tells you **how many groups** to draw.

3. Make up stories about the pairs of division facts below. One story is done for you.

Jack has 18 cents. If he spends 2¢ a day, his money will last 9 days. If he spends 9¢ a day, his money will last 2 days.

$18¢ \div 2¢ = 9$
$18¢ \div 9¢ = 2$

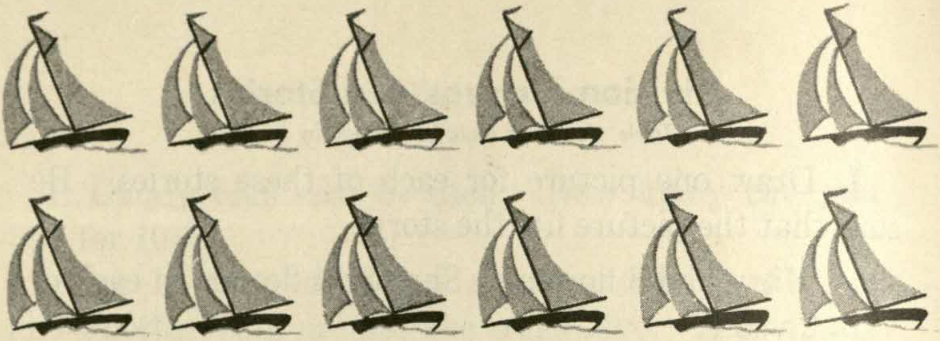
a. $12 \div 2 = 6$
$12 \div 6 = 2$

b. $16 \div 2 = 8$
$16 \div 8 = 2$

c. $14 \div 2 = 7$
$14 \div 7 = 2$

4. Study this table of division facts. If you are good at dividing by 2, these will be easy.

$4 \div 2 = 2$
$10 \div 2 = 5$
$8 \div 4 = 2$
$10 \div 5 = 2$
$12 \div 6 = 2$
$14 \div 7 = 2$
$16 \div 8 = 2$
$18 \div 9 = 2$



Multiplication and Division Families

1. Study the picture of the 12 boats. Explain how it can be used to show each of these facts:

a. 2 × 6 boats = 12 boats
b. 6 × 2 boats = 12 boats
c. 12 boats ÷ 2 boats = 6
d. 12 boats ÷ 6 boats = 2

2. We can make multiplication and division families just as we made addition and subtraction families. Copy these facts. Fill in the missing numbers for each family below.

a. $2\times4=?$
$4\times2=?$
$?\div2=4$
$?\div4=2$

b. $3\times2=?$
$2\times3=?$
$?\div3=2$
$?\div2=3$

c. $7\times?=14$
$14\div?=7$
$14\div?=2$
$2\times?=14$

d. $?\times2=10$
$2\times?=10$
$10\div2=?$
$10\div?=2$

e. $2\times9=?$
$18\div2=?$
$?\times2=18$
$18\div?=2$

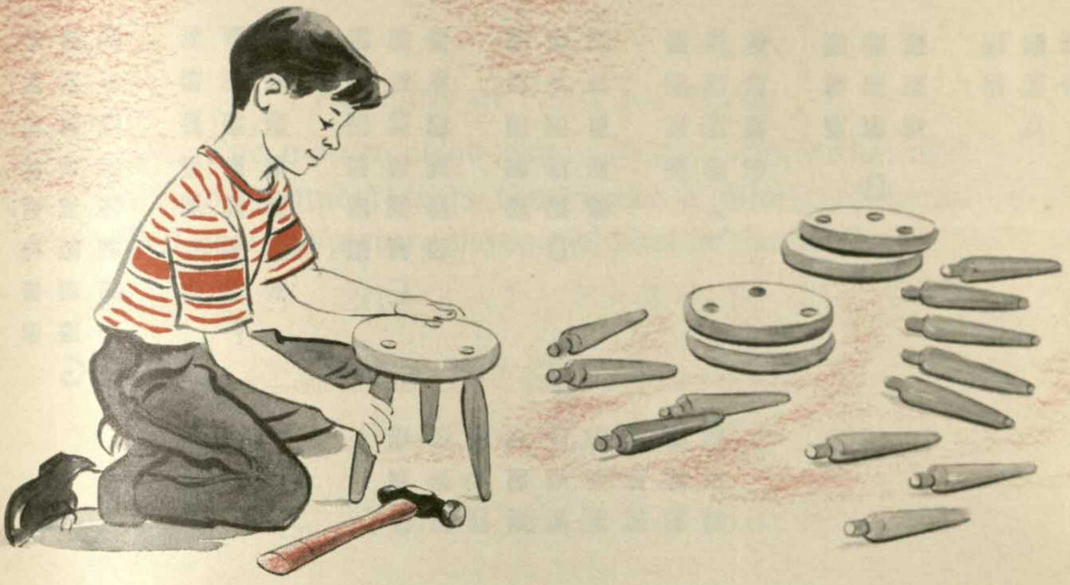
f. $8\times2=?$
$2\times?=16$
$16\div2=?$
$?\div8=?$

g. $2\times2=?$
$?\div2=2$

h. Why are there only two facts in *g* above?

Do It Quickly

	a	*b*	*c*	*d*	*e*	*f*
1.	$3+8$	$12\div3$	$2\div2$	$16\div8$	$11-3$	9×2
2.	$8\div4$	$18\div9$	$5+7$	$12\div4$	$12-6$	8×3
3.	$7+5$	8×2	$11-5$	7×3	$3+9$	$13-4$



Jack Puts Some Stools Together

(Division by threes)

1. Jack is going to have a picnic in his back yard. He needs some stools for his friends to sit on. He is putting the stools together. How many stools has he put together? How many legs does he need for each stool?

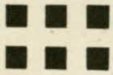
2. How many legs have not been used? How many more stools can he make with that many legs? How many 3's in 12?

3. Jack had 15 legs in all. He uses 3 legs for each stool. How many stools can he make in all? How many 3's in 15?

4. On your paper draw 9 short lines like this: /////////. Draw rings around 3 at a time. How many 3's are there in 9?

5. Make X's on your paper. Draw rings around 3 X's at a time. Find the answers to these questions:

a. How many 3's in 18? *c.* How many 3's in 24?
b. How many 3's in 21? *d.* How many 3's in 27?



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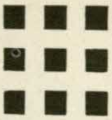

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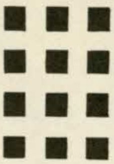

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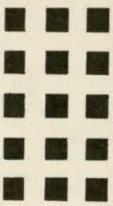

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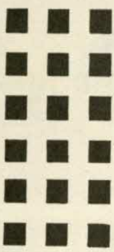

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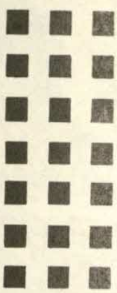

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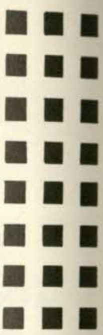
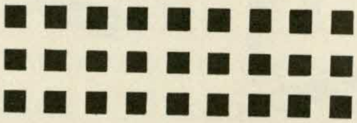


G

H



Two Facts for Each Picture

(Division tables for three)

1. Find the picture that shows 12 squares. Does it show that 12 = four 3's? Does it show that 12 = three 4's? How can it show two facts?

2. Each picture at the top of the page shows two division facts from the tables at the bottom of the page. For each picture, tell what two facts it shows.

3. Draw pictures of your own to show the division facts in the tables below. Draw some of your pictures so they will show two facts at the same time.

Study the facts in the tables until you know them.

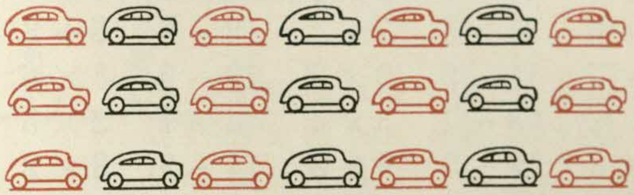
6 ÷ 3 = 2
9 ÷ 3 = 3
12 ÷ 3 = 4
15 ÷ 3 = 5
18 ÷ 3 = 6
21 ÷ 3 = 7
24 ÷ 3 = 8
27 ÷ 3 = 9

6 ÷ 2 = 3
9 ÷ 3 = 3
12 ÷ 4 = 3
15 ÷ 5 = 3
18 ÷ 6 = 3
21 ÷ 7 = 3
24 ÷ 8 = 3
27 ÷ 9 = 3

Families of Facts for Three

1. The picture below shows four multiplication and division number facts that make a family of facts. Tell how the picture shows each fact in the family.

$3 \times 7 = 21$ $21 \div 3 = 7$ $7 \times 3 = 21$ $21 \div 7 = 3$



2. Draw pictures of your own to show each of the following families of facts. You may draw oranges, chairs, trees, tops, candy canes, boats, apples, or other things.

a. $27 \div 3 = 9$
$27 \div 9 = 3$
$3 \times 9 = 27$
$9 \times 3 = 27$

b. $18 \div 3 = 6$
$18 \div 6 = 3$
$6 \times 3 = 18$
$3 \times 6 = 18$

c. $3 \times 8 = 24$
$8 \times 3 = 24$
$24 \div 3 = 8$
$24 \div 8 = 3$

d. $3 \times 5 = 15$
$5 \times 3 = 15$
$15 \div 3 = 5$
$15 \div 5 = 3$

3. Copy these multiplication facts. Finish the division facts that go in the same family.

a. $3 \times 2 = 6$
$2 \times 3 = 6$
$6 \div ? = ?$
$6 \div ? = ?$

b. $3 \times 4 = 12$
$4 \times 3 = 12$
$12 \div ? = ?$
$12 \div ? = ?$

c. $3 \times 3 = 9$
$9 \div ? = ?$

4. How many 3's are there?
a. In 6? *b.* In 15? *c.* In 21? *d.* In 27? *e.* In 24?

5. Make up story problems about how many 3's there are:
a. In 18. *b.* In 12. *c.* In 9.

Do It Quickly

Give the answers quickly. Try to do the work without using paper and pencil. Watch the signs.

	a	b	c	d	e	f
1.	3 + 9	13 − 8	5 + 7	11 − 2	5 + 9	13 − 5
2.	7 + 5	10 − 3	2 + 9	14 − 5	5 + 6	11 − 3
3.	7 + 6	11 − 5	7 + 4	12 − 6	8 + 3	13 − 4
4.	2 × 7	11 − 9	3 × 9	13 − 6	3 × 6	14 − 7
5.	5 × 2	13 − 7	3 × 4	12 − 7	2 × 5	11 − 7
6.	8 × 3	12 − 3	9 × 2	14 − 9	3 × 2	10 − 8
7.	5 × 3	15 − 8	8 × 2	14 − 8	3 × 5	11 − 8

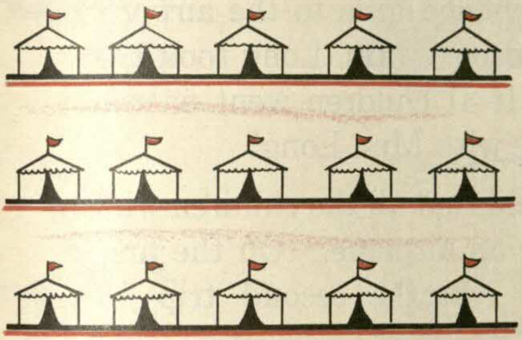
Keep Your Skill

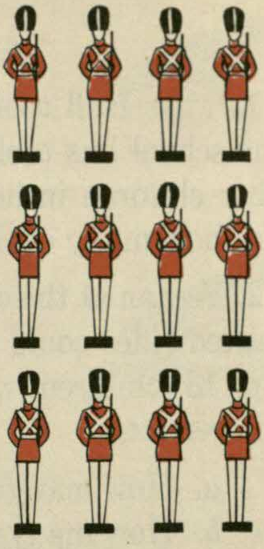
Copy these examples and add:

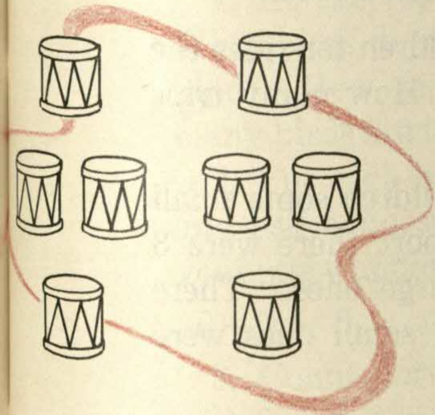
	a	b	c	d	e	f	g	h
1.	412	239	527	136	935	127	146	347
	281	744	355	748	58	69	44	36
2.	47	33	12	74	29	65	74	48
	13	82	47	39	85	14	93	66
	47	38	92	13	48	57	26	30
	38	27	39	47	13	15	18	35

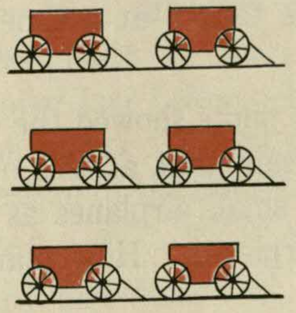
Copy these examples and subtract:

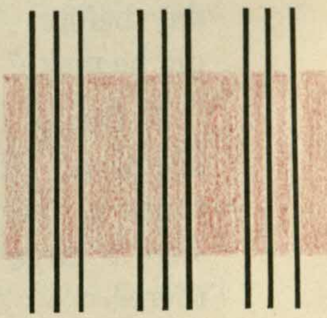
	a	b	c	d	e	f	g	h
3.	946	538	765	700	538	530	768	986
	316	530	364	200	533	230	744	670
4.	$3.49	78¢	$4.37	86¢	$3.75	64¢	$1.43	58¢
	1.29	39¢	1.38	76¢	3.72	57¢	1.07	24¢
5.	633	151	457	982	136	106	247	358
	405	33	248	597	107	96	197	249











What Do the Pictures Show?

(Arithmetic processes related)

Which picture fits each of these facts? Explain each.

	a	*b*	*c*
1.	8 − 4 = 4	3 × 4 = 12	9 − 3 − 3 = 3
2.	9 ÷ 3 = 3	8 ÷ 2 = 4	12 ÷ 3 = 4
3.	5 × 3 = 15	3 × 3 = 9	15 ÷ 3 = 5
4.	6 − 3 = 3	12 ÷ 4 = 3	6 ÷ 2 = 3
5.	6 ÷ 3 = 2	3 + 3 + 3 = 9	3 × 5 = 15
6.	2 × 4 = 8	3 + 3 = 6	5 + 5 + 5 = 15
7.	4 + 4 = 8	4 + 4 + 4 = 12	

Airport Problems

1. Miss Hall took the boys and girls to the airport. The school bus took 26 children. Mrs. Long took the other children in her car. If 31 children went on the trip, how many of them rode with Mrs. Long?

2. A man at the airport said that all the children who wanted rides could go up in an airplane. On the first trip 18 children went up. On the second trip 13 children went.

a. How many children had a ride?

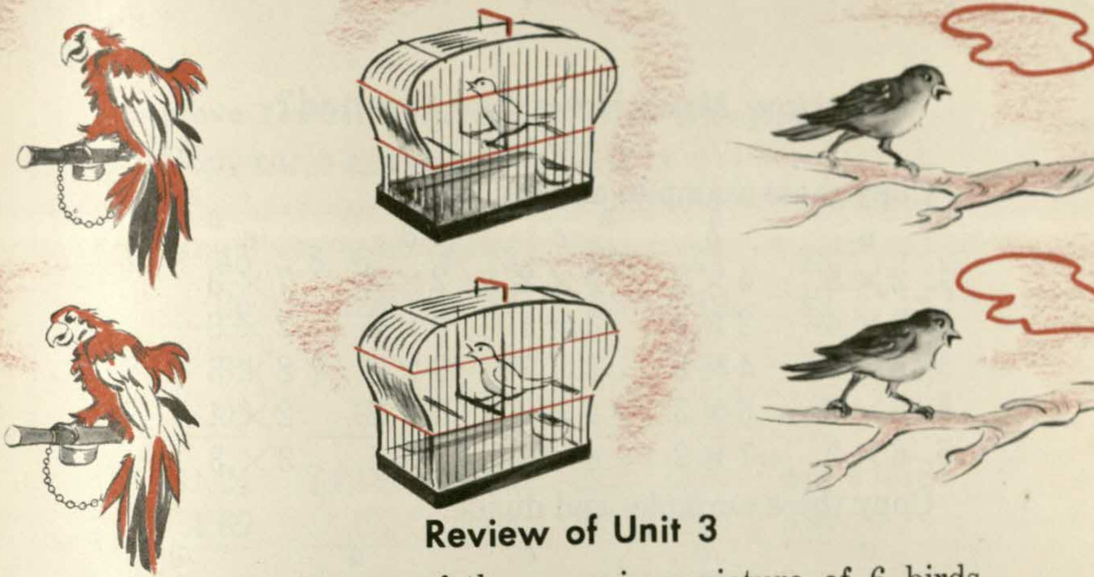
b. How many children did not take a ride?

3. A pilot said that he took 18 children for rides the day before. He took 3 at a time. How many trips did he make?

4. One of the pilots showed the children some small airplanes. He said that at this airport there were 3 times as many small airplanes as large ones. There were 8 large airplanes. How many small ones were there?

5. Jack pointed to a large airplane and a small one that were standing side by side. He asked, "How much faster can the big one go?" Mr. Brown said, "The big one flies about 165 miles an hour on a long trip. The small one flies about 90 miles an hour." Answer Jack's question.

6. Jim wanted to know how much it would cost him to fly to the next big city. He found that the ride to the airport would cost $.75 and the airplane trip $7.18. How much would Jim have to spend to make the trip one way?



Review of Unit 3

1. At the top of the page is a picture of 6 birds. What birds do you see? How many birds are of each kind? How many rows of birds are there? How many birds are there in all?

2. For each number fact below, tell a number story and ask a question about the bird picture. Be sure your story and question fit the number fact.

6 ÷ 2 = 3   2 × 3 = 6   3 × 2 = 6   6 ÷ 3 = 2

3. Count forward and backward by twos. Start with 2, count to 20, then backward to 2 again.

4. Count forward and backward by threes. Start with 3, count to 30, then backward to 3 again.

Copy the examples below. Close your book. Write the quotients.

	a	*b*	*c*	*d*	*e*
5.	10÷2=?	16÷2=?	6÷2=?	14÷2=?	18÷2=?
6.	18÷9=?	12÷6=?	8÷4=?	14÷7=?	12÷3=?
7.	15÷3=?	12÷2=?	9÷3=?	15÷5=?	16÷8=?
8.	24÷3=?	18÷3=?	8÷2=?	21÷7=?	27÷9=?
9.	18÷6=?	24÷8=?	10÷5=?	12÷4=?	6÷3=?
10.	21÷3=?	27÷3=?	4÷2=?		

How Much Have You Learned?

(*Chapter Test 6*)

Copy these examples and multiply.

	a	*b*	*c*	*d*	*e*
1.	2×5	4×2	9×2	2×8	7×3
2.	3×4	2×6	3×6	3×9	2×9
3.	5×3	4×3	2×7	9×3	8×3
4.	3×7	6×3	8×2	5×2	2×4
5.	6×2	7×2	3×8	3×5	3×3

Copy these examples and divide.

	a	*b*	*c*	*d*	*e*
6.	$6 \div 3$	$12 \div 3$	$10 \div 5$	$27 \div 3$	$12 \div 2$
7.	$8 \div 2$	$15 \div 5$	$12 \div 4$	$21 \div 3$	$14 \div 2$
8.	$4 \div 2$	$10 \div 2$	$14 \div 7$	$24 \div 8$	$12 \div 6$
9.	$8 \div 4$	$16 \div 2$	$15 \div 3$	$16 \div 8$	$27 \div 9$
10.	$6 \div 2$	$18 \div 3$	$18 \div 9$	$24 \div 3$	$18 \div 6$
11.	$9 \div 3$	$21 \div 7$	$18 \div 2$		

Copy the first part of each sentence in Column **A**. Pick the right ending in Column **B** to go with it.

A

12. The addition double $5 + 5$ means the same as

13. Multiplication is a short way of adding when

14. The answer in multiplication is called

15. Five 2's is another way of saying

16. We cannot multiply instead of adding when

17. The answer in division is called

B

a. the product.

b. 2×5.

c. the numbers to be added are all the same.

d. 5×2.

e. the quotient.

f. the numbers to be added are all different.

Improve Yourself Test: Addition with Changing

Copy these examples and add.

	a	*b*	*c*	*d*	*e*	*f*	
1.	$ .45	$ .67	$ .13	29	71	23	(148 149)
	.26	.28	.47	55	19	48	
2.	$ .32	$ .17	$ .29	36	76	54	(127 128)
	.09	.06	.07	8	9	7	
3.	$1.24	$4.18	$6.09	327	475	444	(188)
	4.69	1.65	3.05	367	217	536	
4.	$ .88	$ .57	$ .64	47	53	37	(196)
	.66	.57	.76	56	79	66	
5.	$2.29	$3.45	$4.28	235	525	454	(188)
	5.36	6.17	5.44	429	346	317	

Improve Yourself Test: Subtraction with Changing

Copy these examples and subtract.

	a	*b*	*c*	*d*	*e*	*f*	
1.	$ .38	$ .86	$ .41	94	55	52	(152 153)
	.19	.57	.19	48	38	29	
2.	$ .43	$ .87	$ .53	62	74	85	(138 140)
	.09	.09	.08	8	7	6	
3.	$6.30	$8.43	$9.95	481	742	574	(198)
	.16	.18	.36	48	29	38	
4.	$9.85	$7.25	$6.83	547	743	682	(189 190)
	3.29	2.17	3.57	238	426	547	
5.	$9.95	$8.94	$5.83	881	973	571	
	9.28	7.89	3.55	622	664	324	

CHAPTER

7

More Multiplication and Division

UNIT 1 FRACTIONS AND DIVISION

Helping Mother

Helen was helping her mother. Helen said, "I want to do my part of the work, Mother. I want to wash just as much of the window as you do."

1. How many parts does the window have? Are both parts the same size? What do we call each part when we have two equal parts of anything?

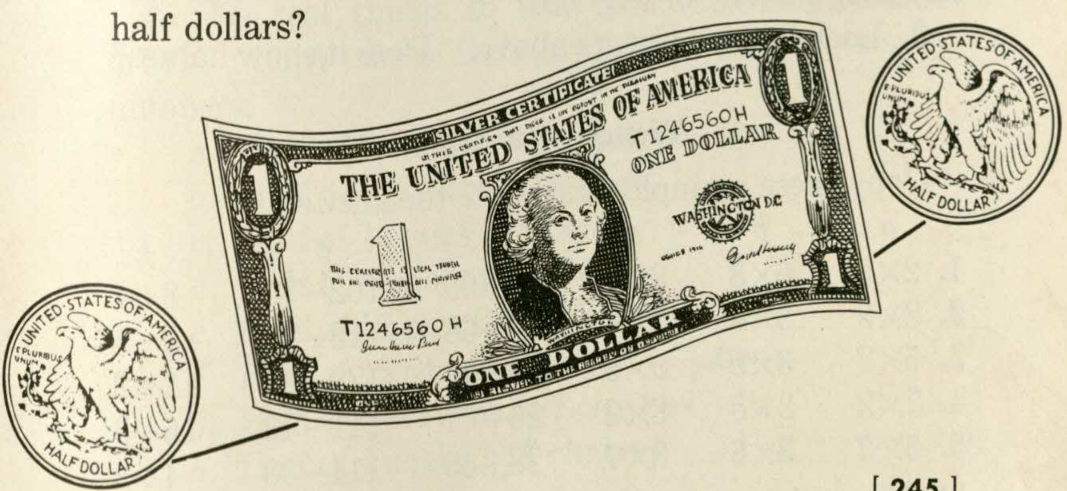
2. Helen washed the bottom part of the window. How much of the window was that?

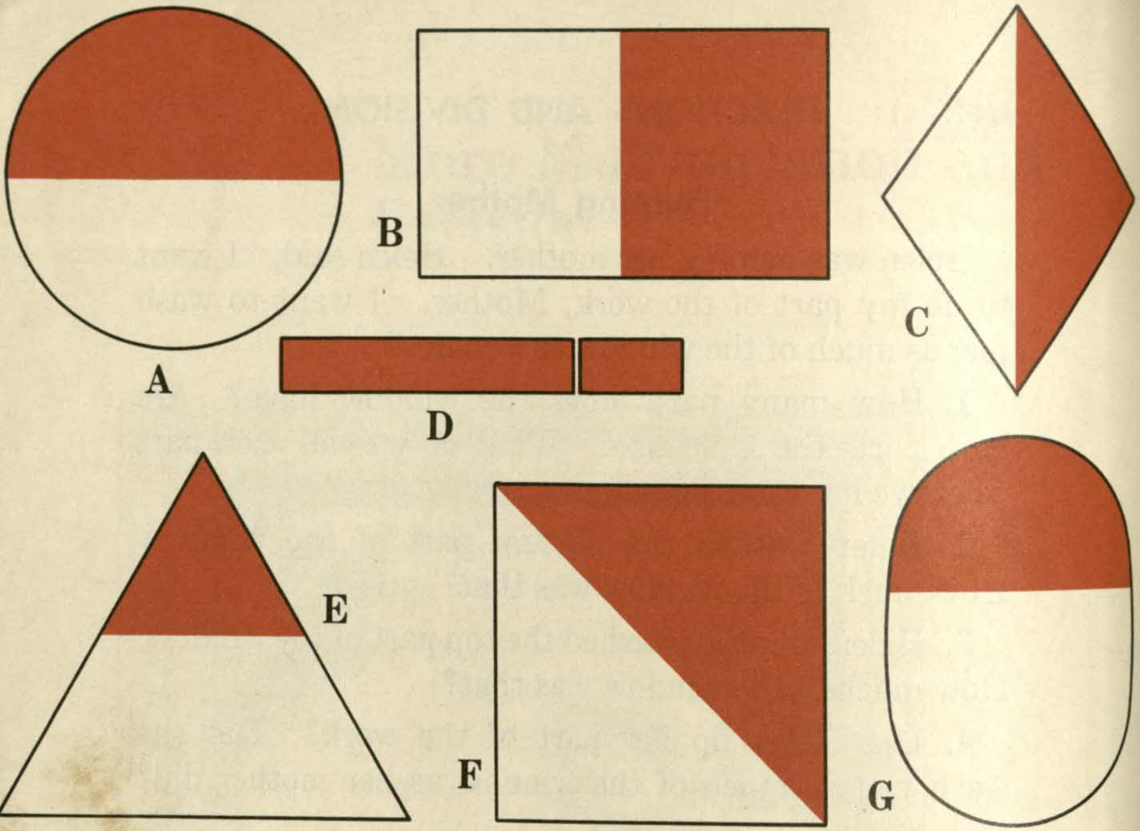
3. Helen's mother washed the top part of the window. How much of the window was that?

4. Did Helen do her part of the work? Did she wash just as much of the window as her mother did?

▶ When anything has two equal parts, each part is called **one half.**

★**5.** Why is each coin in the picture below called a half dollar? Do we cut a paper dollar in two to get half dollars?





Two Equal Parts

1. If something is divided into halves, how many parts must there be?

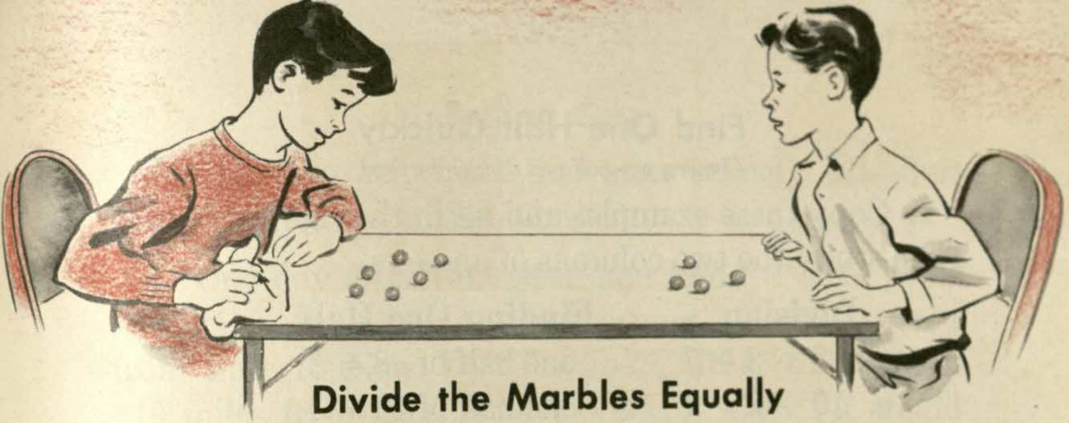
2. Can you have a "big half" or a "small half" of anything? Why or why not?

3. Look at each picture above. Does it show halves?

Watch the Signs

Copy these examples and write the answers:

	a	*b*	*c*	*d*	*e*	*f*
1.	2×5	6×3	3×9	17+99	102−30	8÷4
2.	2×9	3×4	4×3	37+68	113−20	6÷3
3.	5×2	3×5	9×3	66+44	129−30	12÷2
4.	7×2	3×8	8×2	26+77	111−40	15÷3
5.	5×3	3×6	3×7	28+49	114−30	4÷2



Divide the Marbles Equally

(Idea of half of a group)

Father said, "Here are 10 marbles for you two boys. Divide them equally."

1. Joe took six of the marbles and gave the rest to Tom. Did he divide the marbles equally?

Father said, "Start over again. Tom, you take one marble. Now, Joe, you take one. Tom, take another one. Joe, take another one too. Keep on until all ten marbles are gone. Then you will each have half of the marbles."

2. How many marbles should each boy get if he gets half of 10 marbles? How do you know?

3. Draw a picture of 10 marbles divided into two groups so that each boy would have half the marbles.

4. Use real things to help you find half of each group. Copy these facts and write in the missing numbers.

a. Half of 8 erasers = ? erasers
b. Half of 10 rulers = ? rulers
c. Half of 14 pens = ? pens
d. Half of 16 books = ? books
e. Half of 12 pencils = ? pencils
f. Half of 18 sheets of paper = ? sheets
g. Half of 6 crayons = ? crayons
h. Half of 4 chairs = ? chairs

Find One Half Quickly

(Finding one half and division by two)

1. Copy these examples and fill in the right answers. Then study the two columns of answers.

	Division	**Finding One Half**
a.	$8 \div 2 = ?$	one half of $8 = ?$
b.	$10 \div 2 = ?$	one half of $10 = ?$
c.	$16 \div 2 = ?$	one half of $16 = ?$
d.	$18 \div 2 = ?$	one half of $18 = ?$
e.	$4 \div 2 = ?$	one half of $4 = ?$
f.	$12 \div 2 = ?$	one half of $12 = ?$
g.	$14 \div 2 = ?$	one half of $14 = ?$
h.	$6 \div 2 = ?$	one half of $6 = ?$
i.	$2 \div 2 = ?$	one half of $2 = ?$

2. What do you see in the answers in the two columns above? How are **dividing by 2** and **finding one half** alike?

Finding one half of a group is the same as dividing by 2.

3. Write these addition doubles with their sums:

a. $7 + 7$
b. $4 + 4$
c. $8 + 8$
d. $5 + 5$
e. $6 + 6$
f. $9 + 9$
g. $2 + 2$
h. $3 + 3$

4. In $7 + 7 = 14$ you see that each part of the double (7) is one half of the sum (14). How will that help you to find one half of 14 quickly? Tell what is half of each addition double through $9 + 9 = 18$.

▶ Each part of an addition double is one half of the sum.

Selling Gas

Joe likes to help his father after school. He finds many uses for his arithmetic then.

1. One day a man drove in and said, "I have come 300 miles from home this morning. How far is it from here to New York?" Joe's father said, "It is 410 miles from here to New York." How far would the man drive from his home to New York?

2. One man bought \$1.97 worth of gas. Then he saw a light that he wanted. He bought it for \$7.00. How much did he spend in all?

3. A woman drove up with two gas cans in her car. She bought 10 gallons of gas and asked to have 6 gallons put in one can. Joe put the rest into the other can. How much gas did he put in the second can?

4. Joe's father asked Joe to carry away some empty oil cans. Joe took 8 in a basket each time and made 3 trips. How many cans did he carry away?

5. Another day Joe carried away 27 oil cans. If he took 3 cans on each trip, how many trips did he make?

6. Mr. Brown drove up and said, "Fill it up." It took 9 gallons of gas to do that. Mr. Brown's car holds 18 gallons. How much gas did Mr. Brown have to start with?

Add Without Writing

	a	*b*	*c*	*d*
1.	8 + 1 + 6	8 + 3 + 4	8 + 5 + 2	3 + 9 + 5
2.	4 + 7 + 5	9 + 8 + 4	4 + 5 + 6	3 + 5 + 7
3.	4 + 9 + 2	6 + 7 + 2	1 + 5 + 9	2 + 8 + 6

One Third

(One third of a whole and one third of a group)

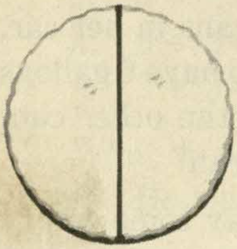
▶ When we divide a thing or a group of things into 2 equal parts, we call each part **one half.**

▶ When we divide a thing or a group of things into 3 equal parts, we call each part **one third.**

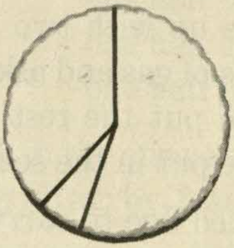
1. Which pictures on this page show halves? How do you know?

2. Which pictures show thirds? How do you know?

3. Which pictures do not show either halves or thirds? Why not?



A



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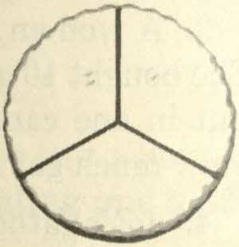

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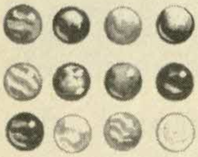

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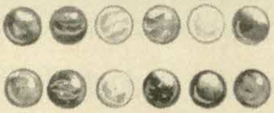

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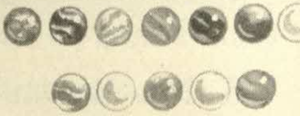
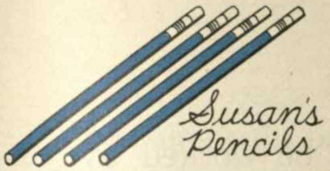
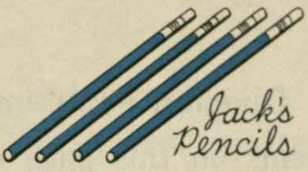


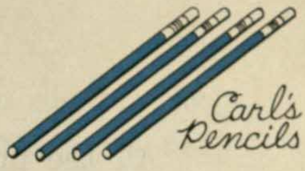
F

▶ **Fractions** tell about equal parts of things or about equal parts of groups. One half and one third are fractions.

★**4.** There are many fractions besides one half and one third. How many equal parts do you think there are if a cake is cut into: *a.* fourths? *b.* fifths? *c.* eighths? *d.* sixths? *e.* twelfths? *f.* tenths?







Two Ways to Use a Division Fact

(Partition and measurement division)

1. Mrs. Smith had 12 pencils. She gave one to Susan, one to Jack, and one to Carl. Then she did the same thing over and over until she had given out all the pencils. How many pencils did each child get?

a. How many children each got an equal number?

b. How many pencils did each child get?

12 pencils ÷ 3 (groups) = 4 pencils (in each group)

12 pencils ÷ 3 = 4 pencils

One third of 12 pencils = 4 pencils

2. Mary had 12 pencils. They were in packages with 3 pencils in each package. How many packages did Mary have?

a. How many pencils were in each package?

b. How many packages did Mary have?

12 pencils ÷ 3 pencils (in each group) = 4 (groups)

12 pencils ÷ 3 pencils = 4

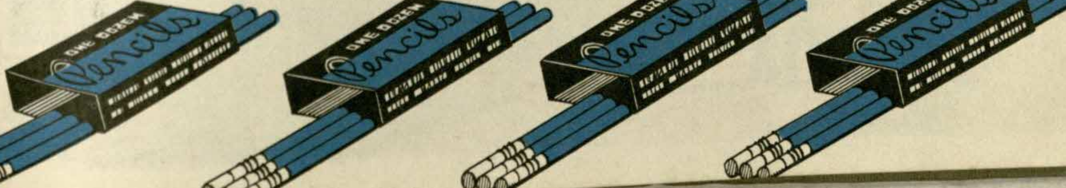
12 pencils = 3 groups of 4 pencils each

3. Both problems use this fact: 12 ÷ 3 = 4

a. In which problem did you have to find how many pencils were in each smaller group?

b. In which problem did you have to find how many smaller groups there were?

The same division fact can help us find:
how many in a group   how many groups



Division Problems

All the problems on this page can be worked by dividing. Some of them can also be worked by subtracting the same number again and again. Work each problem by division. Also work it by subtraction if you can. Write all your work.

1. Mary has 27¢ to buy candy bars that cost 3¢ each. How many candy bars can she buy?

2. Ellen put 21 pennies in 3 equal groups. How many pennies were there in each group?

3. The cost of 3 tablets is 18¢. What is the cost of 1 tablet?

4. Tom's mother divided 12 cookies equally among 3 boys. How many cookies did each boy get?

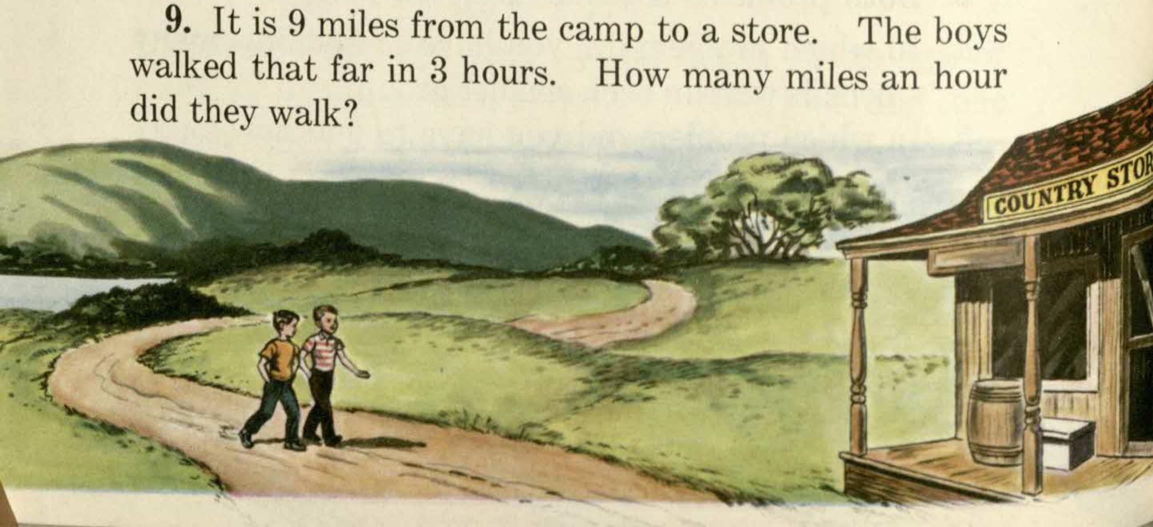
5. Bill was sawing a board. The board was 21 inches long. He cut it into 3 equal pieces. How long was each piece?

6. Ruth is one third as old as Alice. Alice is 18 years old. How old is Ruth?

7. Jack earned 16¢ this week. Jim earned one half as much as Jack. How much did Jim earn?

8. It is 12 miles from a boys' camp to town. The boys walk 3 miles an hour. How long will it take them to walk to town?

9. It is 9 miles from the camp to a store. The boys walked that far in 3 hours. How many miles an hour did they walk?



Look back over the written work you did for the problems on page 252. Then answer these questions:

10. Which problems did you work both by dividing and by subtracting? Which way was quicker? Which way was easier?

11. Which problems did you work only by dividing? Why?

★**12.** Which problems did you do by thinking of a fraction? Were those subtraction problems too or just division problems?

★**13.** When you could work a problem by dividing or by subtracting again and again, did you get the same answer? Why?

★**14.** Make up division problems of your own. Make problems like those on page 252. Find the answers.

Do It Quickly

Find the answers to these examples without using pencil and paper if you can.

	a	*b*	*c*	*d*	*e*	*f*
1.	126 −80	145 −90	150 −60	157 −60	108 −70	115 −71
2.	237 +703	400 +134	220 +502	258 +700	372 +406	328 +530
3.	$9 - 7$	$2 + 8$	$5 + 8$	$9 - 6$	$10 - 1$	$16 \div 8$
4.	9×3	$9 + 1$	$9 - 4$	9×2	$14 \div 7$	$27 \div 3$
5.	9×1	8×2	4×3	7×3	$15 \div 3$	$18 \div 9$
6.	$9 - 2$	3×7	$8 \div 4$	3×9	$27 \div 9$	$24 \div 3$
7.	5×1	6×1	3×5	7×1	$24 \div 8$	$18 \div 6$
8.	3×8	6×3	8×1	4×1	$21 \div 3$	$21 \div 7$

Divide or Multiply?

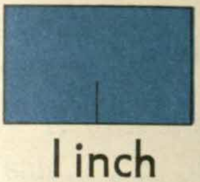
Write a question that will make a problem out of each story below. Then write the multiplication or division fact that will answer your question.

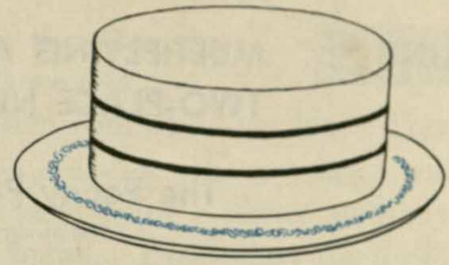
1. Jack bought 3 balloons at 7¢ each.
2. Mary divided 12 marbles equally among 3 boys.
3. Sally bought 2 notebooks at 5¢ each.
4. Betty spent 10¢ for birthday cards at 5¢ each.
5. Ann bought 7 cookies at 2¢ each.
6. Tom divided 8 oranges equally among 4 boys.
7. Bill gave 8 other children 3 pieces of candy each.
8. Pencils cost 8¢ each. Sue bought 2 pencils.
9. Jack had 16 pennies to divide between 2 boys.
10. Sam has 18¢ to spend for 3¢ stamps.
11. Helen asked for 2 bars of soap. The clerk said, "Two bars will cost 14¢."

Keep Your Skill

Copy these facts. Put the right sign in place of each question mark. Use these signs: + − × ÷

	a	*b*	*c*	*d*
1.	12 ? 4 = 3	27 ? 3 = 9	9 ? 2 = 18	12 ? 3 = 4
2.	10 ? 3 = 7	15 ? 5 = 3	4 ? 7 = 11	15 ? 3 = 5
3.	21 ? 3 = 7	12 ? 5 = 7	8 ? 3 = 24	16 ? 8 = 8
4.	11 ? 2 = 9	16 ? 8 = 2	5 ? 6 = 11	27 ? 9 = 3
5.	18 ? 9 = 2	14 ? 7 = 2	7 ? 3 = 21	21 ? 7 = 3
6.	24 ? 3 = 8	15 ? 7 = 8	6 ? 3 = 2	24 ? 8 = 3
7.	10 ? 5 = 2	13 ? 7 = 6	5 ? 3 = 8	12 ? 7 = 5





Review of Unit 1

1. Which pictures on this page show one half? Remember that you may have one half of a whole thing or one half of a group.

2. Which pictures on this page show one third of a whole thing or one third of a group of things?

3. Write the number that is one half of each number below:

a. 4 *b.* 8 *c.* 14 *d.* 18 *e.* 10 *f.* 16

4. Write the number that is one third of each number below:

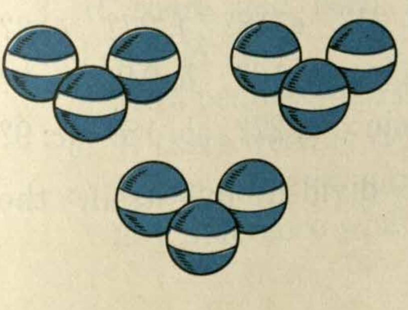
a. 9 *b.* 15 *c.* 24 *d.* 27 *e.* 18 *f.* 21

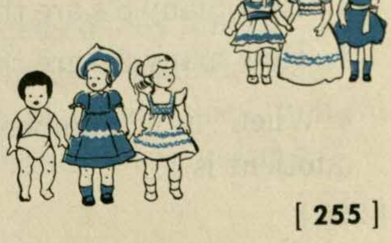
5. Play that you have 18 pencils. Write how many pencils you could have in each group if you divided the 18 pencils into:

a. 2 groups *b.* 6 groups *c.* 3 groups *d.* 9 groups

6. Play that you had 12 oranges. Write how many groups you would have if you divided the 12 oranges into groups of:

a. 3 each *b.* 2 each *c.* 6 each *d.* 4 each





UNIT 2 MULTIPLYING AND DIVIDING TWO-PLACE NUMBERS

The Penny Playhouse

(Multiplying ones)

One day Joe and Dick cleaned the playhouse. They put all their games in it and got them ready to use. Then they put up a sign. The sign said: "Play Any Game for a Penny."

1. Some boys and girls came to play in the Penny Playhouse. Mary came early and played 8 games. How much did she spend? 1¢ + 1¢ + 1¢ + 1¢ + 1¢ + 1¢ + 1¢ + 1¢ = ?¢ 8 times 1¢ = ?¢

2. How much did each of these boys and girls spend at the Penny Playhouse?

a. Billy played 6 games. *d.* Alice played 9 games.
b. Sue played 5 games. *e.* Tom played 4 games.
c. Don played 7 games. *f.* Jack played 2 games.

▶ Any number times 1 equals the same number.

Learning to Divide a Number by Itself

1. How many 2's are there in:
a. 4? *b.* 14? *c.* 6? *d.* 18? *e.* 10? *f.* 16? *g.* 2?

2. How many 3's are there in:
a. 15? *b.* 9? *c.* 24? *d.* 21? *e.* 18? *f.* 27? *g.* 3?

3. How many 8's are there in: *a.* 16? *b.* 24? *c.* 8?

4. How many 9's are there in: *a.* 27? *b.* 18? *c.* 9?

▶ When any number is divided by itself, the quotient is 1.

Weeds in the Garden

(Multiplying zero)

1. Jim and his big brother Tom had a garden. Tom said, "I'm bigger than you are, Jim. Every day I will weed twice as many rows as you do." Twice as many is the same as 2 times as many. How many rows will Tom have to weed if Jim weeds:

a. 5 rows? *c.* 6 rows? *e.* 8 rows?
b. 7 rows? *d.* 9 rows? *f.* 4 rows?

2. Mr. Smith, the boys' father, said, "Tom is going to weed twice as many rows as Jim. I'll weed 3 times as many as Jim." How many rows will Mr. Smith have to weed if Jim weeds the same numbers of rows given above?

3. One day Jim did nothing in the garden. *a.* How many rows did he weed then? *b.* If Jim weeds 0 rows, how many rows will Tom and Mr. Smith have to weed?

Nothing to Divide

(Dividing zero)

1. Sometimes Uncle Dick says to Sue and Jane, "I will give you all the pennies in my pocket. Divide them equally between you."

a. How many pennies would each girl get if Uncle Dick had 18¢? *b.* 14¢? *c.* 16¢? *d.* 4¢? *e.* 10¢?

2. One day Uncle Dick had no pennies at all. How much did each girl get that day?

3. If there had been 3 girls, how many pennies would each girl get:

a. If 15 pennies were divided equally among them?
b. If there were no (0) pennies to be divided?
c. When there is nothing to divide, does it make any difference what number it is divided by?

A List for the Dime Store

(*Multiplying tens*)

1. The dime store has that name because many things that cost 1 dime are sold there. Make a list of 9 different things that you can buy at the dime store for 1 dime (10¢) each. Write the list on the board.

2. Now play that you are buying some of each of those 9 things. How much will it cost to buy:

a. 3 of the first one?
b. 2 of the second one?
c. 5 of the third one?
d. 1 of the fourth one?
e. 4 of the fifth one?
f. 9 of the sixth one?
g. 7 of the seventh one?
h. 6 of the eighth one?
i. 8 of the ninth one?

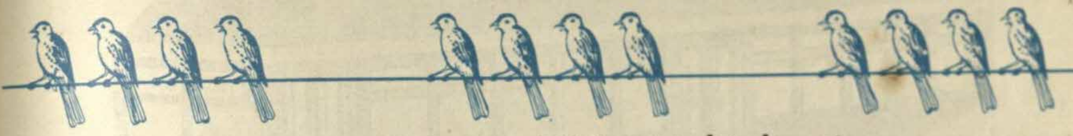
3. Why is it easy to multiply tens?

▶ Any number times 10 equals that number of tens.

4. The multiplication facts for multiplying ones and multiplying tens are given below.

a. How are they alike?
b. How are they different?

one 1 = 1	1 ten = 10	1 × 1 = 1	1 × 10 = 10
two 1's = 2	2 tens = 20	2 × 1 = 2	2 × 10 = 20
three 1's = 3	3 tens = 30	3 × 1 = 3	3 × 10 = 30
four 1's = 4	4 tens = 40	4 × 1 = 4	4 × 10 = 40
five 1's = 5	5 tens = 50	5 × 1 = 5	5 × 10 = 50
six 1's = 6	6 tens = 60	6 × 1 = 6	6 × 10 = 60
seven 1's = 7	7 tens = 70	7 × 1 = 7	7 × 10 = 70
eight 1's = 8	8 tens = 80	8 × 1 = 8	8 × 10 = 80
nine 1's = 9	9 tens = 90	9 × 1 = 9	9 × 10 = 90



A New Way to Write Multiplication

Here is a new way for you to write multiplication. The numbers go with the picture at the top of the page.

$$\begin{array}{r} 4 \text{ birds} \\ \times 3 \phantom{\text{ birds}} \\ \hline 12 \text{ birds} \end{array} \quad \text{or} \quad \begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array}$$

We say: 3 times 4 birds = 12 birds
3 times 4 = 12
three 4's = 12

1. Look at the new way to write multiplication. Then look at the picture of the birds.

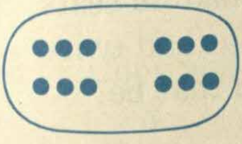
a. How many birds are in each group?
b. Where is that number written?
c. How many groups of birds are there?
d. Where is that number written?
e. Where is the product written?

The top number tells **how many are in each group.**

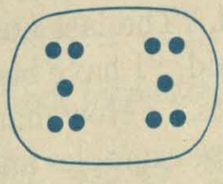
The number with × in front of it tells **how many groups.**

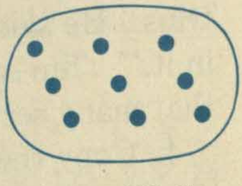
The product tells **how many in all the groups.**

2. Write multiplication facts for the pictures below. The first one is:



$$\begin{array}{r} 6 \text{ balls} \\ \times 2 \phantom{\text{ balls}} \\ \hline 12 \text{ balls} \end{array}$$





3. Write all the multiplication facts you know. Write them the new way.

Riding in Buses

(Multiplying even tens)

1. Tom went on a vacation trip with his family. They took a ride on a bus. The bus had 40 seats inside and 40 seats on top. How many seats were there in all? Study the example below.

40 = how many tens?
2 × 4 tens = how many tens?
8 tens = how many ones?
How many seats were there in all?

$$\begin{array}{r} 4 \text{ tens} \\ \times 2 \\ \hline 8 \text{ tens} \end{array} \qquad \begin{array}{r} 40 \text{ seats} \\ \times 2 \\ \hline 80 \text{ seats} \end{array}$$

> The zero in the ones' place of a two-place number shows that there are no ones. The zero is a place holder. If we did not have it, we could not show how many tens we have.

2. At another place on their trip Tom and his family rode on a bus that had room for 30 people. Three buses of that same size went on the trip. All 3 buses were filled. How many people took the trip?

3. When Tom got home, he told Jim about his bus trips. He said, "The last bus we rode on had 30 seats in it." Jim said, "I have been on a bus that had twice that many seats." How many seats would that be?

4. Copy these examples and multiply:

a. 2 × 20 *c.* 2 × 10 *e.* 2 × 30 *g.* 2 × 40
b. 3 × 10 *d.* 4 × 20 *f.* 3 × 20 *h.* 3 × 30

Ball Games

(Multiplying two-place numbers)

1. Nine players are needed on a ball team. How many are needed on 2 teams? *a.* Find the answer by adding. *b.* Find the answer by multiplying.

2. Eleven players are needed on a football team. How many are needed on 2 teams? Again we may either add or multiply. Study Examples **A** and **B.**

- *a.* What is the sum of 11 and 11?
- *b.* When we add 11 and 11, we are using 11 two times. Show how we use 11 two times in both **A** and **B.**
- *c.* In **B** look at the 1 in the ones' place. Two times 1 = how many ones? 2 × 1 = ?
- *d.* In **B** look at the 1 in the tens' place. Two times 1 ten = how many tens? 2 × 10 = ?
- *e.* In the product of **B** which 2 stands for 2 ones? Which 2 stands for 2 tens, or 20?
- *f.* Example **A** is one way to check **B.** Why?

$$\textbf{A}\quad \begin{array}{r} 11 \\ +11 \\ \hline 22 \end{array}$$

$$\textbf{B}\quad \begin{array}{r} 11 \\ \times 2 \\ \hline 22 \end{array}$$

3. Copy these examples and multiply. Check by adding. How many numbers will you have to add to check multiplying by 3?

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
13	42	12	44	21	32	23	31	12	24
×2	×2	×2	×2	×3	×3	×3	×3	×3	×2

Copy and multiply. Check by adding.

	a	*b*	*c*	*d*	*e*	*f*
4.	2 × 21	2 × 33	2 × 32	2 × 22	2 × 43	2 × 14
5.	3 × 13	2 × 41	3 × 22	3 × 11	3 × 33	2 × 31

A New Way to Write Division

(Measurement situation)

1. Jim has 8 boats. He puts them in the water 2 at a time. How many groups of 2 boats does he have?

Here is a new way to write division. The numbers go with the problem about Jim's boats.

$$\begin{array}{r} 4\phantom{\text{ boats}} \\ 2\text{ boats }\overline{)8}\text{ boats} \end{array} \qquad \text{or} \qquad \begin{array}{r} 4 \\ 2\overline{)8} \end{array}$$

We say: 8 boats divided by 2 boats = 4

8 divided by 2 = 4

2. Think about Problem **1**.

a. How many boats did Jim have in all?
b. Where is that number written?
c. How many boats did Jim put in each group?
d. Where is that number written?
e. What is the quotient?
f. Where is the quotient written?

▶ In dividing to find how many groups, we write:
how many in all under the $\overline{)}$
how many in each group in front of $\overline{)}$
how many groups on top of $\overline{)}$

Work these problems. Write the division facts the new way.

3. Alice had 15 paper dolls. She put them in groups of 5 dolls each. How many groups did she make?

4. Bill had 27¢. He spent 9¢ every day. How many days did his money last?

More About Writing Division

(Partition situation)

1. Carl has 8 boats. He divided them into 2 equal groups. How many are in each group?

We write: $\begin{array}{r} 4\text{ boats} \\ 2\overline{)8}\text{ boats} \end{array}$ or $\begin{array}{r} 4 \\ 2\overline{)8} \end{array}$

We say: 8 boats divided by 2 = 4 boats
8 divided by 2 = 4

2. Answer these questions about Problem **1** and the division facts above.

a. How many boats did Carl have in all?
b. Where is that number written?
c. How many groups did Carl make?
d. Where is that number written?
e. What is the quotient?
f. Where is the quotient written?

▶ In dividing to find how many in a group, we tell:
how many in all under the $\overline{)}$
how many groups in front of $\overline{)}$
how many in each group on top of $\overline{)}$

3. Mary had 12 doll dresses. She washed half of them. How many did she wash?

★**4.** Compare the divisions about Jim's boats and Carl's boats. What part is written the same way? What parts are not written the same way? Why?

Ten in a Box

(Dividing even tens)

Mr. Hall lives near Adams School. Sometimes he likes to give candy to the children he knows. One day three boys walked by Mr. Hall's house. He had 9 boxes of candy.

1. Mr. Hall said, "I am going to divide these 9 little boxes of candy equally among you 3 boys." How many boxes did each boy get?

2. Mr. Hall had 9 boxes of candy, and there were 10 pieces of candy in each box. How many pieces of candy were there in all?

3. Each boy got 3 boxes of candy. How many pieces of candy did each boy get? Study Examples **A** and **B.**

a. In Example **A** we are really dividing 9 boxes (10 in a box) by 3. Why?

b. In Example **A** our quotient is really 3 boxes (10 in a box). Why?

c. In Example **B** we first divided 9 tens by 3. 9 tens ÷ 3 = how many tens?

A 3 boxes
$3\overline{)9}$ boxes

B 30 pieces
$3\overline{)90}$ pieces

d. In Example **B** we have 0 ones. How many ones will we write in the quotient?

4. Copy these examples and divide:

a. 40 ÷ 2 *b.* 80 ÷ 2 *c.* 60 ÷ 3 *d.* 60 ÷ 2

Pull Hard!

(Division of a two-place number by a one-place number)

1. Twenty-four boys met at the playground. One boy said, "Let us take sides for a pulling game." They wanted to be sure to have the same number of boys on each side. How many boys should there be on each side? Study the example below to see how to divide 24 by 2.

a. When we divide a two-place number, we begin by dividing the tens' number. 2 tens ÷ 2 = how many tens?

b. Now divide the number in ones' place. 4 ones ÷ 2 = how many ones?

c. 1 ten and 2 ones = 12. How many boys should there be on each side?

d. We check division by multiplying. Where do we get each number that is used in checking the answer to $2\overline{)24}$?

Example

$$\begin{array}{r}12\\2\overline{)24}\end{array}$$

Check

$$\begin{array}{r}12\\\times 2\\\hline 24\end{array}$$

▶ When we divide a two-place number by a one-place number, we divide tens first, then ones.

2. Explain these examples. Check each answer by multiplying.

a. $\begin{array}{r}12\\3\overline{)36}\end{array}$ *b.* $\begin{array}{r}40¢\\2\overline{)80¢}\end{array}$ *c.* $\begin{array}{r}31\\2\overline{)62}\end{array}$ *d.* $\begin{array}{r}31¢\\3\overline{)93¢}\end{array}$ *e.* $\begin{array}{r}20\\3\overline{)60}\end{array}$

Buying at the Food Store

(The four processes in problems)

1. A can of tomatoes cost 13¢. *a.* What did 2 cans cost? *b.* What did 3 cans cost?

2. Jane paid 68¢ for 2 boxes of the same kind of breakfast food. How much did one box cost?

3. Meat sold for 32¢ a pound. *a.* What was the cost of 2 pounds? *b.* What was the cost of 3 pounds?

4. Mary bought 2 glasses of jelly at 44¢ each. What was the total cost?

5. There were 36 oranges in the store in the morning. One third of them were sold by noon. How many oranges were sold by noon?

6. Dick's mother paid $2.37 for food one day. The next time she went to the store she spent $5.44. *a.* How much more did she spend the second time? *b.* How much did she spend on both days?

7. *a.* How many eggs are there in a dozen? *b.* How many are there in 2 dozen? *c.* How many are there in 3 dozen?

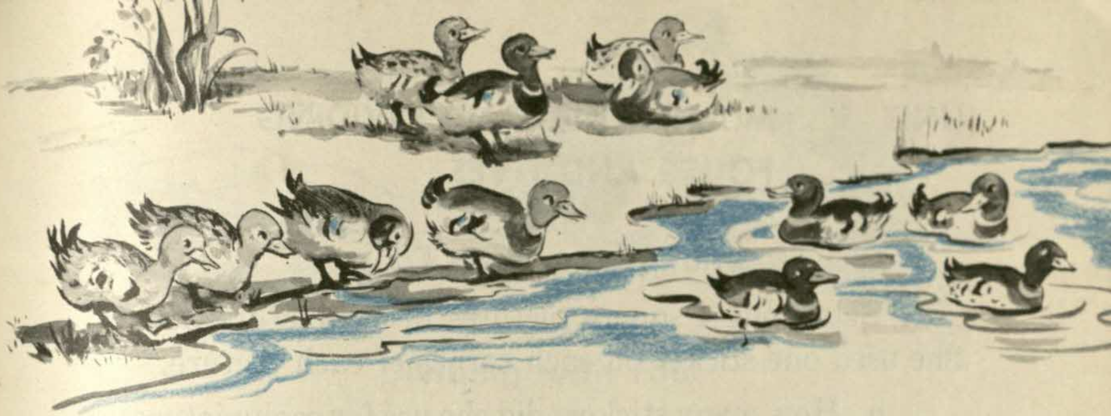
8. How many eggs are there in one-half dozen?

9. A farmer had 39 chickens for sale. He took them to Mr. Green's store. Mr. Green bought one third of them. How many chickens did Mr. Green buy?

Division Practice

Divide these numbers. Check by multiplying.

a. 42÷2=?
b. 64÷2=?
c. 48÷2=?
d. 84÷2=?
e. 68÷2=?
f. 40÷2=?
g. 36¢÷3=?
h. 69¢÷3=?
i. 33¢÷3=?
j. 39¢÷3=?
k. 90¢÷3=?
l. 63¢÷3=?



Review of Unit 2

1. Read these two division facts. Tell which one goes with each picture on this page.

A $\begin{array}{l} \quad 4 \text{ ducks} \\ 3\overline{)12} \text{ ducks} \end{array}$ **B** $\begin{array}{r} 4 \\ 3 \text{ ducks } \overline{)12} \text{ ducks} \end{array}$

2. In the examples above, look at the quotients.

a. In which example does the quotient tell how many in each group?

b. In which example does the quotient tell how many groups?

3. Copy these examples and multiply:

a	*b*	*c*	*d*	*e*	*f*
$\begin{array}{r} 14 \\ \underline{\times 2} \end{array}$	$\begin{array}{r} 24 \\ \underline{\times 2} \end{array}$	$\begin{array}{r} 31 \\ \underline{\times 3} \end{array}$	$\begin{array}{r} 12 \\ \underline{\times 4} \end{array}$	$\begin{array}{r} 23 \\ \underline{\times 3} \end{array}$	$\begin{array}{r} 34 \\ \underline{\times 2} \end{array}$

4. Copy these examples and divide:

a	*b*	*c*	*d*	*e*	*f*
$3\overline{)96}$	$2\overline{)48}$	$2\overline{)46}$	$3\overline{)36}$	$4\overline{)84}$	$2\overline{)66}$

5. Copy these examples the other way and multiply:

a. 2 × 30
b. 2 × 23
c. 2 × 42
d. 3 × 30
e. 3 × 32
f. 3 × 12

6. Copy these examples the other way and divide:

a. 40 ÷ 2
b. 60 ÷ 3
c. 88 ÷ 2
d. 62 ÷ 2
e. 63 ÷ 3
f. 99 ÷ 3

UNIT 3 MULTIPLYING AND DIVIDING FOURS AND FIVES

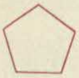
Multiplying with Four

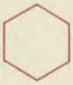
1. Betty put 4 square pictures in her picture book. She used one sticker on each corner of each picture.

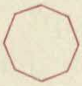
a. How many stickers did she use for each picture?
b. How many did she need for four pictures?
c. 4 × 4 stickers = ? stickers.

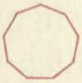
2. How many stickers would it take for:
a. 5 pictures? *c.* 7 pictures? *e.* 9 pictures?
b. 3 pictures? *d.* 6 pictures? *f.* 8 pictures?

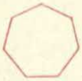
3. How many corners does each of these figures have?


A


B


C


D


E

4. How many corners would there be if you had 4 of each figure above?

a. $4 \times 5 = ?$ *c.* $4 \times 8 = ?$ *e.* $4 \times 7 = ?$
b. $4 \times 6 = ?$ *d.* $4 \times 9 = ?$

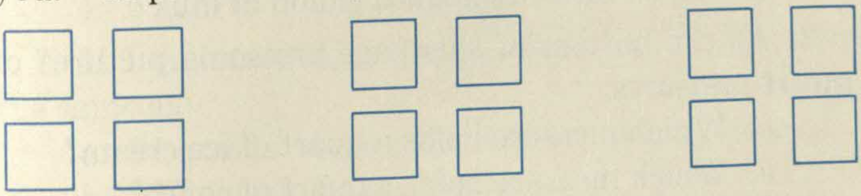
5. Here are the multiplication facts with 4 in them. How many of them do you know? Study them all.

$$\begin{array}{rrrrrrrr} 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 \\ \times 2 & \times 3 & \times 4 & \times 5 & \times 6 & \times 7 & \times 8 & \times 9 \\ \hline 8 & 12 & 16 & 20 & 24 & 28 & 32 & 36 \end{array}$$

$$\begin{array}{rrrrrrrr} 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ \times 4 & \times 4 & \times 4 & \times 4 & \times 4 & \times 4 & \times 4 & \times 4 \\ \hline 8 & 12 & 16 & 20 & 24 & 28 & 32 & 36 \end{array}$$

Dividing with Four

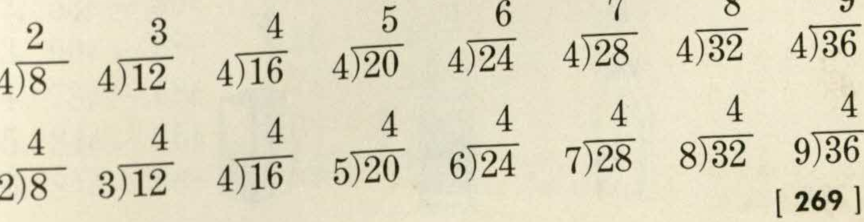
1. Betty has 12 more pictures that she wants to put in her book. She is going to put 4 pictures on each page. How many pages will she need to use? How many 4's are there in 12? The picture below will help you. 12 pictures ÷ 4 pictures = 3.



2. Play that you are putting pictures in a book like Betty's. You will put 4 pictures on each page. How many pages will you need to use for:

a. 16 pictures?
c. 32 pictures?
e. 28 pictures?
b. 24 pictures?
d. 20 pictures?
f. 36 pictures?

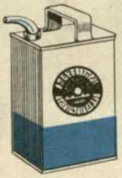
3. Here are the division facts with 4 in them. How many of them do you know? Draw a picture for each division fact you are not sure of. Here is a picture for 16 ÷ 4 = 4:



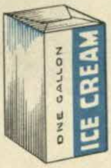
$\begin{array}{r}2\\4\overline{)8}\end{array}$ $\begin{array}{r}3\\4\overline{)12}\end{array}$ $\begin{array}{r}4\\4\overline{)16}\end{array}$ $\begin{array}{r}5\\4\overline{)20}\end{array}$ $\begin{array}{r}6\\4\overline{)24}\end{array}$ $\begin{array}{r}7\\4\overline{)28}\end{array}$ $\begin{array}{r}8\\4\overline{)32}\end{array}$ $\begin{array}{r}9\\4\overline{)36}\end{array}$

$\begin{array}{r}4\\2\overline{)8}\end{array}$ $\begin{array}{r}4\\3\overline{)12}\end{array}$ $\begin{array}{r}4\\4\overline{)16}\end{array}$ $\begin{array}{r}4\\5\overline{)20}\end{array}$ $\begin{array}{r}4\\6\overline{)24}\end{array}$ $\begin{array}{r}4\\7\overline{)28}\end{array}$ $\begin{array}{r}4\\8\overline{)32}\end{array}$ $\begin{array}{r}4\\9\overline{)36}\end{array}$

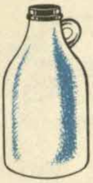
A



B



C



What Is A Gallon?

(Liquid measure)

1. All the pictures at the top of this page show **gallon** measures.

- *a.* Which measure holds a gallon of ice cream?
- *b.* Which measure holds a gallon of gas?
- *c.* Which measure holds a gallon of milk?

2. At the bottom of this page are some pictures of **quart** measures.

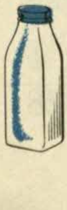
- *a.* Which measure holds a quart of ice cream?
- *b.* Which measure holds a quart of coffee?
- *c.* Which measure holds a quart of milk?

3. Use real measures like those in the pictures.

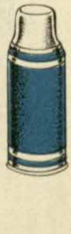
- *a.* Fill the quart milk bottle with water. Then put the water into a gallon measure. How many times do you have to do this to fill the gallon measure?
- *b.* Do the same thing with a quart ice-cream measure. How many quarts fill the gallon measure?

4. What is a gallon? How many quarts equal 1 gallon?

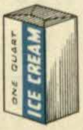
D



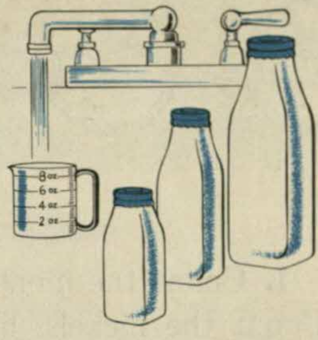
E



F



5. Use water and measures like those in the picture. Show that:



1 cup = 1 half pint
1 pint = 2 cups
1 pint = 2 half pints
1 quart = 2 pints
1 quart = 4 cups
1 gallon = 4 quarts

6. If 4 cups equal 1 quart, how many cups are in:

a. 4 quarts? *c.* 7 quarts? *e.* 6 quarts?
b. 5 quarts? *d.* 8 quarts? *f.* 9 quarts?

7. If 1 gallon equals 4 quarts, how many gallons are the same as:

a. 24 quarts? *c.* 16 quarts? *e.* 36 quarts?
b. 32 quarts? *d.* 20 quarts? *f.* 28 quarts?

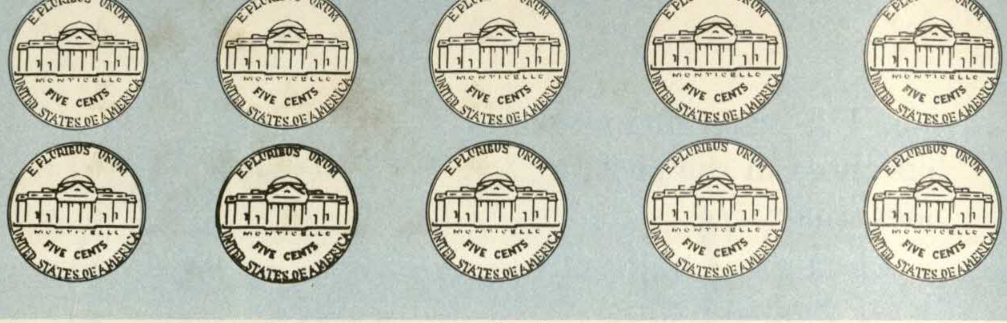
★**8.** Find out how many glasses or cups of milk you should drink each day. Do you drink as much as you should, more than you should, or less than you should?

★**9.** Find out how many quarts of milk should be used every day by a family of four people.

Time for Practice

Copy these examples and write the answers:

	a	*b*	*c*	*d*
1.	82¢ − 57¢	\$.79 + \$.65	767 − 308	537 + 128
2.	53¢ − 36¢	\$.89 + \$.37	851 − 836	666 + 124
3.	90¢ − 58¢	\$.96 + \$.95	840 − 634	246 + 727
4.	73¢ − 68¢	\$.78 + \$.29	475 − 369	234 + 336
5.	84¢ − 75¢	\$.89 + \$.84	786 − 469	347 + 116
6.	84¢ − 66¢	\$.69 + \$.82	862 − 549	319 + 645



Nickels

(Multiplication and division facts with 5)

1. Count the money shown at the top of the page. Count the nickels, like this: 1, 2, and so on. How many nickels are there?

2. How much is each nickel worth? Count the same money again. Count by 5's this time, like this: 5¢, 10¢, and so on.

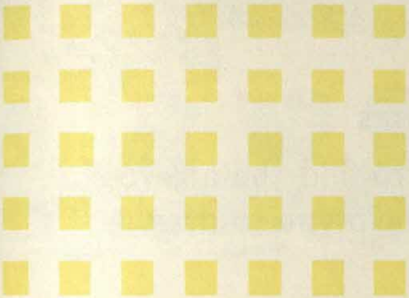
3. Copy the facts below. Write numbers in place of the question marks:

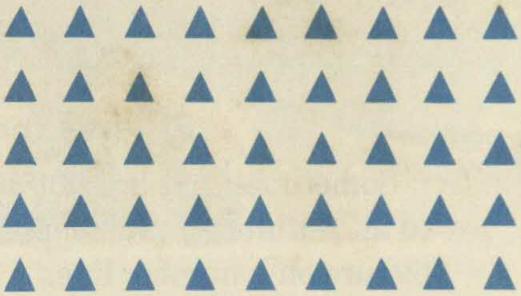
a. 5 nickels = 5 × 5¢ = ?¢
b. 6 nickels = 6 × 5¢ = ?¢
c. 7 nickels = 7 × 5¢ = ?¢
d. 8 nickels = 8 × 5¢ = ?¢
e. 9 nickels = 9 × 5¢ = ?¢

4. Read all the answers you wrote to Exercise 3. When you read them fast, it is like counting by 5's. Why is that?

5. Copy the facts below. Write numbers in place of the question marks:

a. 10¢ = _?_ nickels   10¢ ÷ 5¢ = 2
b. 15¢ = _?_ nickels   15¢ ÷ 5¢ = 3
c. 20¢ = _?_ nickels   20¢ ÷ 5¢ = ?
d. 25¢ = _?_ nickels   25¢ ÷ 5¢ = ?
e. 30¢ = _?_ nickels   30¢ ÷ 5¢ = ?
f. 35¢ = _?_ nickels   35¢ ÷ 5¢ = ?
g. 40¢ = _?_ nickels   40¢ ÷ 5¢ = ?





Families of Facts for Fives

(Multiplication and division facts with 5)

1. What color is the picture on this page that shows this family of number facts? Explain how the picture shows these 4 facts.

$$\begin{array}{lll} 6 \times 5 = 30 & \qquad & 30 \div 6 = 5 \\ 5 \times 6 = 30 & \qquad & 30 \div 5 = 6 \end{array}$$

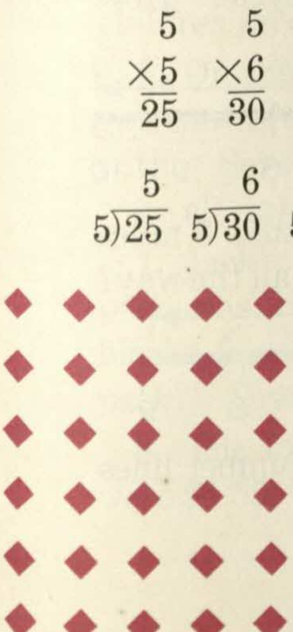
2. What color is the picture on this page that shows each of these other families of number facts?

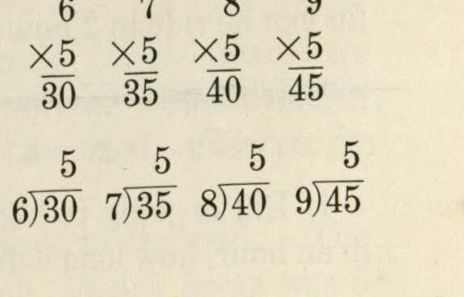
$$\begin{array}{rr@{\qquad}rr@{\qquad}rr} a. & 5 \times 8 = 40 & b. & 5 \times 7 = 35 & c. & 5 \times 9 = 45 \\ & 8 \times 5 = 40 & & 7 \times 5 = 35 & & 9 \times 5 = 45 \\ & 40 \div 8 = \ \ 5 & & 35 \div 7 = \ \ 5 & & 45 \div 9 = \ \ 5 \\ & 40 \div 5 = \ \ 8 & & 35 \div 5 = \ \ 7 & & 45 \div 5 = \ \ 9 \end{array}$$

3. Here are number facts with 5 in them. How many do you know? Study them well.

$$\begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array} \quad \begin{array}{r} 5 \\ \times 6 \\ \hline 30 \end{array} \quad \begin{array}{r} 5 \\ \times 7 \\ \hline 35 \end{array} \quad \begin{array}{r} 5 \\ \times 8 \\ \hline 40 \end{array} \quad \begin{array}{r} 5 \\ \times 9 \\ \hline 45 \end{array} \qquad \begin{array}{r} 6 \\ \times 5 \\ \hline 30 \end{array} \quad \begin{array}{r} 7 \\ \times 5 \\ \hline 35 \end{array} \quad \begin{array}{r} 8 \\ \times 5 \\ \hline 40 \end{array} \quad \begin{array}{r} 9 \\ \times 5 \\ \hline 45 \end{array}$$

$$\begin{array}{r} 5 \\ 5\overline{)25} \end{array} \quad \begin{array}{r} 6 \\ 5\overline{)30} \end{array} \quad \begin{array}{r} 7 \\ 5\overline{)35} \end{array} \quad \begin{array}{r} 8 \\ 5\overline{)40} \end{array} \quad \begin{array}{r} 9 \\ 5\overline{)45} \end{array} \qquad \begin{array}{r} 5 \\ 6\overline{)30} \end{array} \quad \begin{array}{r} 5 \\ 7\overline{)35} \end{array} \quad \begin{array}{r} 5 \\ 8\overline{)40} \end{array} \quad \begin{array}{r} 5 \\ 9\overline{)45} \end{array}$$



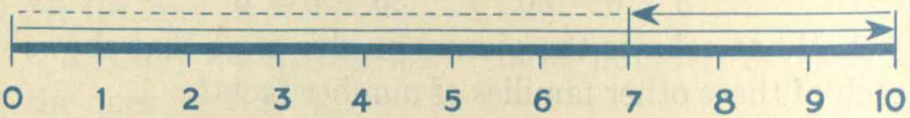


Pictures for Problems

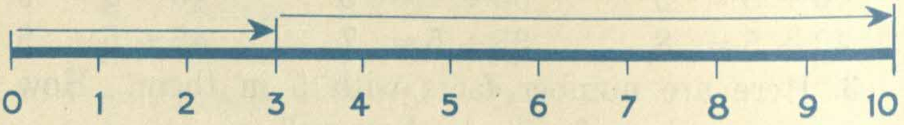
Sometimes you are not sure how to find the answer to an arithmetic problem. It may help you to draw a picture on a number line.

Read each problem below. Then study the number line picture that is right below the problem.

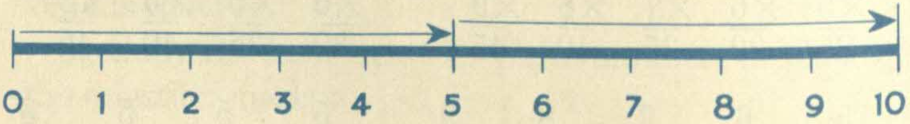
1. Bill rode his bicycle 10 miles from his home to a place where he liked to go fishing. He started home. After he had gone 3 miles, his bicycle broke down. He had to walk the rest of the way home. How far did he walk?



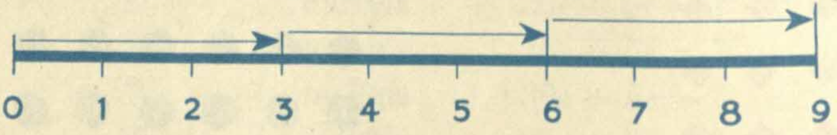
2. Bill rode 3 miles on his bicycle. Then he walked 7 miles. How far did he go in all?



3. Bill can go 5 miles an hour on his bicycle. How far can he ride in 2 hours?



4. Bill is going to hike 9 miles. If he walks 3 miles in an hour, how long will it take him to hike all the way?



When you are working problems, draw number lines if you think they will help you.

How Well Can You Work Problems?

(Problem Test 7)

The children in a school class had a picnic.

1. Fourteen boys and 19 girls went to the picnic. How many people went, not counting the teacher?

2. One half of the boys went swimming. How many boys went swimming?

3. Eight girls went swimming. How many girls did not go swimming?

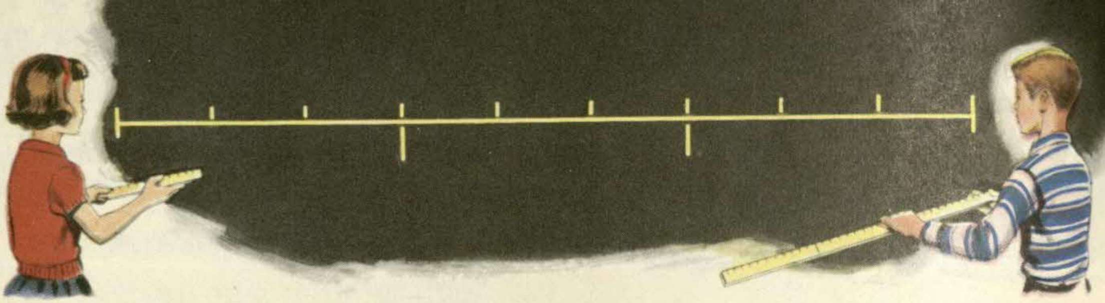
4. Sixteen children wanted to use the seesaws at the same time. Two children would get on each seesaw. How many seesaws would there have to be so that all 16 children could use the seesaws at the same time?

5. There were only 6 seesaws in the park. How many children could use them at one time with 2 children on each seesaw?

6. On the way to the park some of the ice-cream bars got too soft to be used. There were 36 bars to begin with. Seven of them could not be used. How many were all right?

7. Jack's home was on the way to the park. The park was 21 blocks from school. Jack's home was 5 blocks from school. How far does Jack live from the park? Draw a number line to show this.

8. The food for the picnic cost $5.25. Other costs were $4.55. What was the total cost of the picnic?



Change Feet to Yards

Joe and Ruth have measured the line on the board. Ruth measured with a foot ruler. She made the marks above the line. Joe measured with a yardstick. He made the marks below the line.

1. How long is the line in feet? In yards?

2. How many feet are there in a yard? If you knew how long the line was in feet, how could you know how many yards it was? 9 feet ÷ 3 feet = ?

3. On the board draw lines to show these facts:

a. 4 in. = one-third foot
b. 6 in. = one-half foot
c. 1 third of 9 in. = 3 in.
d. a half of 10 in. = 5 in.
e. 2 × 6 in. = 12 in.
f. 3 × 4 in. = 12 in.
g. 6 × 2 in. = 12 in.
h. 4 × 3 in. = 12 in.

Ask and Answer

(The four processes in problem situations)

Ask a question to make a problem of each story below. Then answer the question with a number fact.

1. Mary bought 8 pencils at 5¢ each.

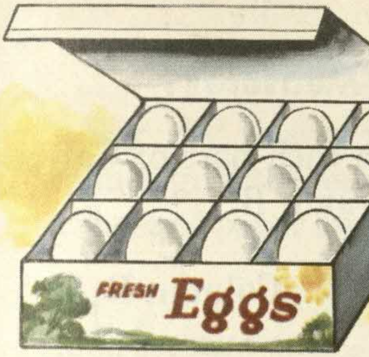
2. Jack divided 12 arrows equally between himself and Tom.

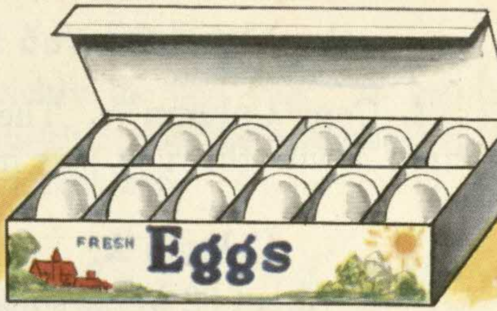
3. Betty bought 2 notebooks at 9¢ each.

4. Tom bought a tablet for 5¢ and a book for 9¢.

5. Ann bought 8 stamps at 2¢ each.

6. Sam had 18¢ before he bought one 3¢ stamp.





Eggs by the Dozen

(Multiplication, division, and fractions related to a dozen)

1. How many eggs are there in: *a.* 1 dozen? *b.* 2 dozen? *c.* 3 dozen? *d.* 4 dozen?

2. *a.* If you buy one-half dozen eggs, how many eggs should you get? *b.* How many eggs are there in one-third dozen? In one-fourth dozen?

3. Thinking of 12 eggs in a dozen should help you remember these number facts. Say them. Put in the missing numbers.

a. $2 \times 6 = ?$

b. $3 \times ? = 12$

c. $6 \times ? = 12$

d. $12 \times 3 = ?$

e. $12 \div 4 = ?$

f. $12 \div ? = 6$

g. one third of 12 = ?

h. one half of 12 = ?

4. *a.* Cover part of each picture at the top of the page so that only one-half dozen eggs show. *b.* Show one-fourth dozen in the same way.

5. Show four different ways to divide a dozen into groups that are the same size. Draw pictures or use books, pieces of candy, pencils, or other things to do this.

6. Write the four division facts for what you have just done.

★**7.** How much does a dozen eggs cost where you live?

★**8.** What things are bought by the dozen?

How Well Do You Know Measures?

1. Copy **Column A.** Then finish each part of **Column A** with the right part from **Column B.**

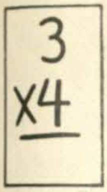
Column A	Column B
a. About 52 weeks equal	one-quarter hour
b. Fifteen minutes equal	one week
c. Seven days equal	sixty minutes
d. About 30 days equal	one year
e. There are 12 months	in one month
f. One hour is the same as	in one year
g. There are about 4 weeks	one-half hour
h. Thirty minutes are	one month

2. Copy **Column C.** Then finish each part of **Column C** with the right part from **Column D.**

Column C	Column D
a. Ten pairs of shoes =	16
b. The number of quarts in 4 gallons =	20
c. A dozen apples =	12
d. The number of inches in a yard =	10
e. Two dozen eggs =	36
f. The number of dimes in a dollar =	24
g. The number of inches in one-half foot =	2
h. The number of gallons in 8 quarts =	6

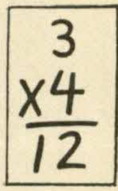
3. What do you measure in:

a. Minutes?
b. Feet?
c. Cents?
d. Pounds?
e. Dozens?
f. Gallons?
g. Cups?
h. Yards?
i. Years?



A

What Should You Practice?



B

Say the answers as quickly as you can. If you cannot give the answers quickly, copy the examples on a sheet of paper and write the answers.

	a	*b*	*c*	*d*	*e*	*f*
1.	2 × 4	3 × 2	4 × 2	6 × 3	3 × 8	2 × 9
2.	3 × 4	2 × 6	2 × 8	3 × 7	5 × 3	9 × 3
3.	2 × 3	5 × 2	3 × 3	4 × 3	4 × 4	2 × 2
4.	8 × 3	4 × 5	3 × 5	4 × 6	2 × 5	8 × 2
5.	4 × 7	7 × 3	4 × 8	3 × 6	4 × 9	5 × 4
6.	6 × 4	7 × 4	8 × 4	9 × 4	5 × 5	5 × 6
7.	5 × 7	5 × 8	5 × 9	6 × 5	6 × 2	9 × 2

8. Make practice cards for all the multiplication facts you cannot say quickly. The front of each card should look like Card **A** above. The back of the card should look like Card **B.**

9. Now practice. Use the cards. Look at the front of the card. Say the product. Look on the back to see if you said the right product. Keep practicing until you can give all the right products quickly.

Meaning of Multiplication

Write the multiplication fact that means the same as each of these addition facts:

	a	*b*	*c*
1.	9 + 9 + 9 = 27	9 + 9 + 9 + 9 = 36	5 + 5 = 10
2.	4 + 4 + 4 = 12	7 + 7 + 7 + 7 = 28	7 + 7 = 14
3.	5 + 5 + 5 = 15	6 + 6 + 6 + 6 = 24	8 + 8 = 16

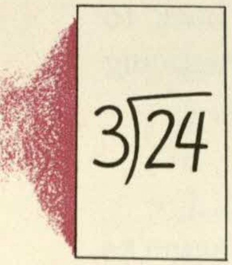
Say the answers as quickly as you can. If you cannot give the answers quickly, copy the examples on a sheet of paper and write the answers.

What Should You Practice?

Say the answers as quickly as you can. If you cannot give the answers quickly, copy the examples on a sheet of paper and write the answers.

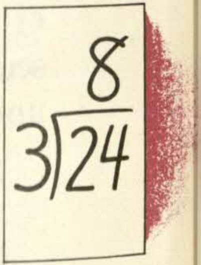
	a	*b*	*c*	*d*	*e*	*f*
1.	6 ÷ 3	16 ÷ 4	10 ÷ 2	12 ÷ 2	15 ÷ 3	14 ÷ 2
2.	4 ÷ 2	20 ÷ 4	12 ÷ 4	21 ÷ 7	18 ÷ 2	18 ÷ 3
3.	6 ÷ 2	36 ÷ 9	21 ÷ 3	27 ÷ 9	10 ÷ 5	15 ÷ 5
4.	8 ÷ 4	20 ÷ 5	18 ÷ 9	14 ÷ 7	24 ÷ 3	24 ÷ 8
5.	8 ÷ 2	24 ÷ 6	36 ÷ 4	16 ÷ 2	12 ÷ 3	16 ÷ 8
6.	9 ÷ 3	24 ÷ 4	25 ÷ 5	27 ÷ 3	18 ÷ 6	12 ÷ 6
7.	28 ÷ 7	28 ÷ 4	30 ÷ 5	40 ÷ 5	30 ÷ 6	40 ÷ 8
8.	32 ÷ 8	32 ÷ 4	35 ÷ 5	45 ÷ 5	35 ÷ 7	45 ÷ 9

9. Make practice cards for all the division facts you cannot say quickly. The front of each card should look like Card **A.** The back should look like Card **B.**



A

10. Now practice. Use the cards. Look at the front of the card. Say the quotient. Look on the back to see if you said the right quotient. Keep practicing until you can give all the quotients correctly and quickly.



B

Meaning of Division

Write the division fact that means the same as each of these facts:

	a	*b*
1.	27 − 9 − 9 − 9 = 0	one third of 24 = 8
2.	40 − 8 − 8 − 8 − 8 − 8 = 0	one fourth of 32 = 8
3.	28 − 7 − 7 − 7 − 7 = 0	one half of 18 = 9

Review of Unit 3

Multiply. Say or write the products.

	a	b	c	d	e	f	g
1.	5 ×4	6 ×5	6 ×4	4 ×4	7 ×5	4 ×5	3 ×4
2.	7 ×4	9 ×4	8 ×5	9 ×5	4 ×6	4 ×8	5 ×6
3.	5 ×7	5 ×9	4 ×7	5 ×8	4 ×9	5 ×5	8 ×4

Divide. Say or write the quotients.

	a	b	c	d	e	f	g
4.	$4\overline{)16}$	$4\overline{)24}$	$5\overline{)20}$	$5\overline{)30}$	$4\overline{)20}$	$4\overline{)32}$	$4\overline{)12}$
5.	$5\overline{)25}$	$4\overline{)28}$	$5\overline{)40}$	$4\overline{)36}$	$6\overline{)24}$	$7\overline{)28}$	$6\overline{)30}$
6.	$5\overline{)45}$	$7\overline{)35}$	$8\overline{)40}$	$9\overline{)45}$	$9\overline{)36}$	$8\overline{)32}$	$5\overline{)35}$

7. What do you do:

a. to change feet to yards?
b. to change yards to feet?
c. to change quarts to gallons?
d. to change gallons to quarts?
e. to change pennies to nickels?
f. to change nickels to pennies?

8. Multiply or divide to change one measure to another. Write your answers.

a. 20 quarts = ? gallons
b. 24 quarts = ? gallons
c. 8 gallons = ? quarts
d. 7 gallons = ? quarts
e. 18 feet = ? yards
f. 27 feet = ? yards
g. 8 yards = ? feet
h. 7 yards = ? feet
i. 15 pennies = ? nickels
j. 45 pennies = ? nickels
k. 8 nickels = ? pennies
l. 6 nickels = ? pennies

How Much Have You Learned?

(Chapter Test 7)

Say the answers quickly. Watch the signs:

	a	*b*	*c*	*d*	*e*
1.	3×4	$6 \div 3$	8×3	$14 \div 2$	$4 + 9$
2.	7×4	8×5	3×8	$27 \div 9$	$9 - 6$
3.	$28 \div 4$	$35 \div 5$	$24 \div 6$	$16 - 8$	9×4

4. How much is one half of:

a. 12? *b.* 18? *c.* 14? *d.* 16? *e.* 8?

5. How much is one third of:

a. 12? *b.* 21? *c.* 24? *d.* 18? *e.* 15?

Copy these examples and write the products:

	a	*b*	*c*	*d*	*e*	*f*
6.	$\begin{array}{r}4\\ \times 4\\ \hline\end{array}$	$\begin{array}{r}7\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}6\\ \times 4\\ \hline\end{array}$	$\begin{array}{r}9\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}8\\ \times 4\\ \hline\end{array}$	$\begin{array}{r}8\\ \times 5\\ \hline\end{array}$
7.	$\begin{array}{r}4\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 7\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 9\\ \hline\end{array}$	$\begin{array}{r}4\\ \times 6\\ \hline\end{array}$	$\begin{array}{r}7\\ \times 4\\ \hline\end{array}$	$\begin{array}{r}4\\ \times 8\\ \hline\end{array}$
8.	$\begin{array}{r}22\\ \times 4\\ \hline\end{array}$	$\begin{array}{r}31\\ \times 2\\ \hline\end{array}$	$\begin{array}{r}24\\ \times 2\\ \hline\end{array}$	$\begin{array}{r}23\\ \times 3\\ \hline\end{array}$	$\begin{array}{r}20\\ \times 4\\ \hline\end{array}$	$\begin{array}{r}21\\ \times 4\\ \hline\end{array}$

Copy these examples and write the quotients:

	a	*b*	*c*	*d*	*e*	*f*
9.	$4\overline{)36}$	$8\overline{)32}$	$4\overline{)32}$	$4\overline{)24}$	$5\overline{)45}$	$6\overline{)30}$
10.	$4\overline{)20}$	$9\overline{)36}$	$5\overline{)25}$	$5\overline{)40}$	$5\overline{)30}$	$7\overline{)28}$
11.	$2\overline{)82}$	$3\overline{)69}$	$2\overline{)84}$	$3\overline{)36}$	$4\overline{)80}$	$4\overline{)84}$

Improve Yourself Test: Multiplication

Copy these examples and write the products:

	a	*b*	*c*	*d*	*e*	*f*	
1.	3 ×4	4 ×7	2 ×9	5 ×3	6 ×2	7 ×3	(206 208 218 220 268 273)
2.	8 ×4	3 ×8	9 ×5	4 ×9	7 ×5	9 ×3	
3.	4 ×6	5 ×9	6 ×4	7 ×4	5 ×7	4 ×8	
4.	10 ×5	20 ×4	30 ×3	40 ×2	20 ×3	30 ×2	(260)
5.	23 ×3	24 ×2	12 ×4	31 ×3	32 ×2	22 ×4	(261)
6.	41 ×2	34 ×2	42 ×2	43 ×2	31 ×3	21 ×4	

Improve Yourself Test: Division

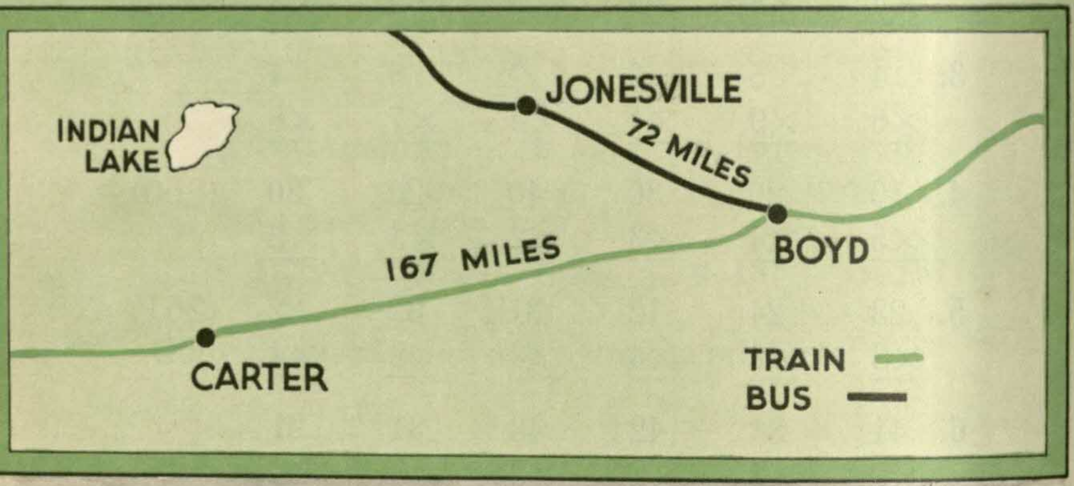
Copy these examples and write the quotients:

	a	*b*	*c*	*d*	*e*	
1.	$3\overline{)24}$	$2\overline{)18}$	$4\overline{)16}$	$5\overline{)40}$	$3\overline{)21}$	(231 233 236 269 273)
2.	$4\overline{)28}$	$5\overline{)45}$	$6\overline{)24}$	$4\overline{)36}$	$7\overline{)35}$	
3.	$9\overline{)45}$	$5\overline{)20}$	$6\overline{)30}$	$8\overline{)40}$	$7\overline{)28}$	
4.	$2\overline{)80}$	$3\overline{)60}$	$4\overline{)80}$	$6\overline{)60}$	$5\overline{)50}$	(264)
5.	$3\overline{)39}$	$2\overline{)88}$	$2\overline{)48}$	$3\overline{)69}$	$4\overline{)48}$	(265)
6.	$2\overline{)68}$	$2\overline{)28}$	$3\overline{)93}$	$3\overline{)36}$	$2\overline{)82}$	

CHAPTER

8

Using Larger Numbers



UNIT 1 CHANGING HUNDREDS IN ADDITION AND SUBTRACTION

Trip to the Farm

(Carrying a dollar and carrying a hundred)

Jim went from Carter to Boyd by train. He went from Boyd to Jonesville by bus. The train ticket cost \$4.83. The bus ticket cost \$1.44.

1. How much did Jim pay for his two tickets?

a. 8 dimes + 4 dimes = ? dimes

b. 12 dimes = ? dollars and ? dimes

c. What do we do with the 2 dimes and the 1 dollar?

d. 1 dollar + 4 dollars + 1 dollar = ? dollars

$$\boxed{\begin{array}{r} \$\overset{1}{4}.83 \\ 1.44 \\ \hline \$6.27 \end{array}}$$

2. Look at the map. How many miles did Jim ride by train? By bus? By train and bus?

a. 6 tens + 7 tens = ? tens

b. 13 tens = ? hundred and ? tens

c. What do we do with the hundred? With the 3 tens?

d. 1 hundred + 1 hundred = ? hundreds

$$\boxed{\begin{array}{r} \overset{1}{1}67 \\ 72 \\ \hline 239 \end{array}}$$

3. Jim's grandfather took him part way home in his car. Jim's bus ticket cost him only \$1.24. How much did his bus and train tickets cost on the way home?

a. 8 dimes + 2 dimes = ? dimes

b. 10 dimes = ? dollars and ? dimes

c. What does the 0 in the dimes' column mean?

d. 1 dollar + 4 dollars + 1 dollar = ? dollars

$$\boxed{\begin{array}{r} \$\overset{1}{4}.83 \\ 1.24 \\ \hline \$6.07 \end{array}}$$

When the sum of the tens' column is 10 or more, we change 10 tens to 1 hundred.

How Do You Write Your Work?

When you add or subtract and have to change ones, tens, or hundreds, how do you write your work?

Like This?

$$\begin{array}{r} \overset{1}{4}83 \\ +144 \\ \hline 627 \end{array} \quad \begin{array}{r} \overset{1}{6}7 \\ +16 \\ \hline 83 \end{array} \quad \begin{array}{r} \overset{8}{\cancel{9}}\overset{15}{\cancel{5}} \\ -77 \\ \hline 18 \end{array} \quad \begin{array}{r} 4\overset{2}{\cancel{3}}\overset{14}{\cancel{4}} \\ -119 \\ \hline 315 \end{array}$$

Or Like This?

$$\begin{array}{r} 483 \\ +144 \\ \hline 627 \end{array} \quad \begin{array}{r} 67 \\ +16 \\ \hline 83 \end{array} \quad \begin{array}{r} 95 \\ -77 \\ \hline 18 \end{array} \quad \begin{array}{r} 434 \\ -119 \\ \hline 315 \end{array}$$

Write the changed numbers above the example only if you need it to help you get the right answer.

Copy these examples and add:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	$7.74	$3.09	$5.74	$2.89	86	343	228	273
	.91	4.67	1.85	5.04	390	83	726	305
2.	$6.36	$7.65	$6.05	$5.93	58	205	672	580
	1.83	1.43	2.09	.66	860	668	54	133
3.	$4.30	$1.54	$2.73	$5.42	670	534	772	840
	2.86	3.71	7.19	1.75	167	371	43	62

Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
4.	$7.80	$9.65	$8.96	$1.77	685	273	794	772
	7.59	2.27	6.37	1.69	348	247	248	326
5.	$9.56	$8.63	$4.91	$3.72	993	460	381	864
	4.38	2.45	4.74	2.54	354	235	362	859

6. Give the answers quickly without writing:

a. 9 × 2 *c.* 7 × 3 *e.* 6 × 3 *g.* 6 × 2 *i.* 9 × 3

b. 8 × 2 *d.* 7 × 2 *f.* 8 × 3 *h.* 3 × 9 *j.* 5 × 3

A Trip by Car

(Carrying twice)

1. The Ball family took a trip by car. They drove to Hill City by the shortest way. It was 387 miles. They came back by a way that was 424 miles long. How far did they drive both ways? Explain **A.**

a. Why do we carry 1 ten to the tens' column?

b. Why do we carry 1 hundred to the hundreds' column?

A

$$\begin{array}{rrrl} 1 & 1 & & \\ 3 & 8 & 7 & \text{miles} \\ 4 & 2 & 4 & \text{miles} \\ \hline 8 & 1 & 1 & \text{miles} \end{array}$$

2. Mrs. Ball bought two presents to take home to friends. One present cost \$2.58. The other present cost \$3.46. How much did both cost? Explain **B.**

a. Why is 1 dime carried to the dimes' column?

b. Why is 1 dollar carried to the dollars' column?

c. Why is there a zero in the dimes' column?

B

$$\begin{array}{rrrrr} & 1 & & 1 & \\ \$ & 2 & . & 5 & 8 \\ & 3 & . & 4 & 6 \\ \hline \$ & 6 & . & 0 & 4 \end{array}$$

3. On another trip to Hill City the Ball family took the short road. They also made a side trip through a park. How far was it to Hill City by the short way (387 miles) plus the side trip (113 miles)? Explain **C.**

a. Why are there zeros in the ones' and tens' columns?

b. Why is 1 hundred carried to the hundreds' column?

C

$$\begin{array}{rrrl} 1 & 1 & & \\ 3 & 8 & 7 & \text{miles} \\ 1 & 1 & 3 & \text{miles} \\ \hline 5 & 0 & 0 & \text{miles} \end{array}$$

The red numbers show you what is carried. Write these numbers only if you need them.

Use Your New Skills

Copy these examples and add.

	a	*b*	*c*	*d*	*e*
1.	242 + 579	375 + 370	460 + 261	60 + 54	58 + 97
2.	468 + 458	265 + 370	189 + 283	10 + 98	26 + 98
3.	774 + 179	686 + 129	379 + 155	63 + 67	84 + 76
4.	215 + 603	517 + 108	134 + 160	75 + 59	29 + 47

Copy these examples and write the quotients:

	a	*b*	*c*	*d*	*e*	*f*
5.	27 ÷ 9	15 ÷ 3	12 ÷ 6	24 ÷ 8	27 ÷ 3	16 ÷ 8
6.	18 ÷ 6	14 ÷ 7	15 ÷ 5	24 ÷ 3	18 ÷ 3	10 ÷ 5
7.	45 ÷ 5	36 ÷ 9	35 ÷ 7	40 ÷ 8	28 ÷ 7	32 ÷ 4
8.	35 ÷ 5	24 ÷ 6	45 ÷ 9	32 ÷ 8	40 ÷ 5	36 ÷ 4

Dollars, Dimes, and Pennies

(Relation among place values)

Look at the money numbers at the side of the page. Answer the questions below for every number. The answers are given for the first number ($1.90).

$1.90
$1.29
$2.40
$1.18
$1.80
$3.52
$2.60
$2.15
$3.87
$2.38

1. How many dollars?	1
2. How many dimes?	9
3. How many pennies?	0
4. If you change the dollars to dimes, how many dimes are there?	19
5. If you change the dimes to pennies, how many pennies are there?	90
★6. If you change both dollars and dimes to pennies, how many pennies are there?	190

Reading the Signs

Study the signs in the picture below as you do these problems. Write your work.

1. How much farther is it to New Town than to Lakeside?

2. How much closer is Hill City than New Town?

3. What town is 2 times as far away as Garden City?

4. What town is one third as far away as Walker?

5. How far is it to Walker and back? (Do this one in two different ways.)

6. If you walked half of the way to Hill City, how far would you walk?

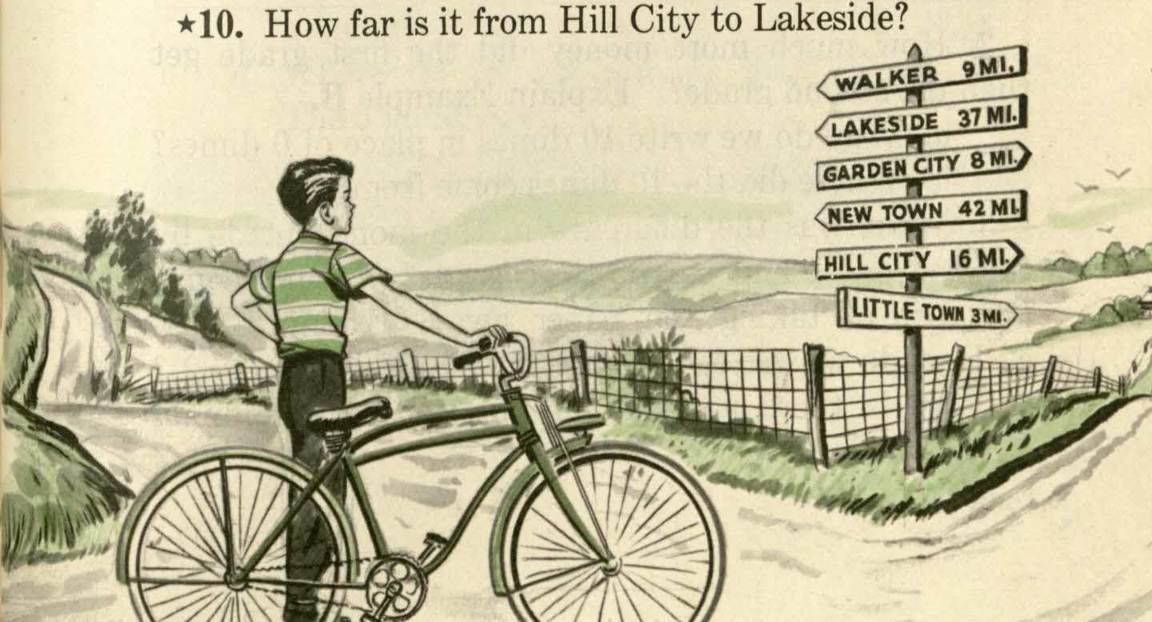
For the problems below, you must look at the picture to see the way each sign points.

7. If you came from Walker to the corner where the signs are and went on to Hill City, how many miles would you go all together?

8. A man wanted to go from the corner to Lakeside. Someone gave him a ride to Walker. Then how far did he have left to go?

★9. How far is it from New Town to Garden City?

★10. How far is it from Hill City to Lakeside?


WALKER 9 MI.
LAKESIDE 37 MI.
GARDEN CITY 8 MI.
NEW TOWN 42 MI.
HILL CITY 16 MI.
LITTLE TOWN 3 MI.

Paper Sales

(Changing hundreds in subtraction)

The Long Street School saved all the old paper they could. The first grade got \$9.09 for their paper, the second grade got \$6.92, and the third grade got \$8.27.

1. How much money did the third grade make? They had to pay \$1.35 for help in taking away the paper. Explain Example **A.**

a. Why do we write 12 dimes in place of 2 dimes?

b. Where did the 10 extra dimes come from?

c. How many dollars are left after we change 1 dollar to dimes?

A

$$\begin{array}{r} \$\ \overset{7}{\cancel{8}}.\overset{12}{\cancel{2}}7 \\ -1.35 \\ \hline \$\ 6.92 \end{array}$$

B

$$\begin{array}{r} \$\ \overset{8}{\cancel{9}}.\overset{10}{\cancel{0}}9 \\ -6.92 \\ \hline \$\ 2.17 \end{array}$$

C

$$\begin{array}{r} \$\ \overset{8}{\cancel{9}}.\overset{10}{\cancel{0}}9 \\ -8.27 \\ \hline \$\ \ .82 \end{array}$$

2. How much more money did the first grade get than the second grade? Explain Example **B.**

a. Why do we write 10 dimes in place of 0 dimes?

b. Where did the 10 dimes come from?

3. What was the difference in the money made by the first grade and by the third grade? Do not count the cost of taking the paper away. Explain **C.**

a. How do we get each figure in the difference (\$.82)?

b. Why is there no figure in the dollars' column in the difference?

When we do not have enough dimes to subtract from, we take 1 dollar from the dollars' column and change it to 10 dimes.

4. Copy these examples and subtract. Change the numbers only when you need to do so.

	a	*b*	*c*	*d*	*e*	*f*	*g*
(1)	\$3.29	\$4.28	\$6.90	\$7.09	\$6.81	\$3.59	\$6.07
	.86	1.43	2.43	4.85	.49	1.79	1.83
(2)	\$4.36	\$9.09	\$8.71	\$7.14	\$4.75	\$9.15	\$7.72
	.95	.74	7.38	6.74	2.75	7.08	.90

Check your subtractions by adding up, like this:

2 pennies + 5 pennies = 7 pennies
9 dimes + 3 dimes = 12 dimes
Change 10 dimes to 1 dollar.
1 dollar + 6 dollars + 1 dollar = 8 dollars

$$\begin{array}{r} \$\ 8.27 \\ -1.35\uparrow \\ \hline \$\ 6.92 \end{array}$$

5. Walker School has 624 children this year and had 482 last year. How many more are there this year?

a. 4 ones − 2 ones = ? ones
b. 12 tens − 8 tens = ? tens
c. 5 hundreds − 4 hundreds = ? hundreds
d. Where do we get the 12 tens? The 5 hundreds?

$$\begin{array}{r} 624 \\ -482 \\ \hline 142 \end{array}$$

When we do not have enough tens to subtract from, we take 1 hundred from the hundreds' column and change it to 10 tens.

6. Copy these examples and subtract.

a. 526−175 *c.* 807−144 *e.* 159−98 *g.* 215−130
b. 459−273 *d.* 605−362 *f.* 135−64 *h.* 259− 60

How Much Was Saved?

(Changing twice)

1. Alice's mother bought Alice a dress for $2.69. Last week the price was $3.50. How much did Alice and her mother save by buying the dress this week?

a. We cannot subtract 9 pennies from 0 pennies. How do we get pennies?

b. We cannot subtract 6 dimes from 4 dimes. We need some more dimes. Where can we get them?

c. Why is there a 2 at the top of the dollars' column? Why is there a 14 at the top of the dimes' column?

d. Why is there no figure in the dollars' place in the answer?

$$
\begin{array}{r}
{\scriptstyle 14}\ \ \ \\
{\scriptstyle 2}\ \ \ \cancel{{\scriptstyle 4}}\ {\scriptstyle 10}\\
\$\cancel{3}.\cancel{5}0\\
-2.69\\
\hline
\$\ \ .81
\end{array}
$$

If we need to, we can change a dime to pennies and a dollar to dimes in the same subtraction example.

2. Study these subtractions. Then copy the examples without answers, close your book, and subtract. Do not write the little numbers at the top unless you need them to help you get the right answers.

a	*b*	*c*	*d*	*e*	*f*	*g*
$4.35	$3.30	$4.25	$8.20	$4.17	$1.50	$3.04
2.68	1.98	3.76	7.85	.98	.75	1.65
$1.67	$1.32	$ .49	$ .35	$3.19	$ .75	$1.39

3. Subtract these numbers. Check by adding up.

a. $7.99 – $5.53
b. $4.52 – $2.47
c. $3.29 – $1.54
d. $5.46 – $2.78
e. $3.57 – $2.58
f. $9.41 – $3.97
g. $6.78 – $.99
h. $1.29 – $.34
i. $9.41 – $.95

Improving the Schoolroom

(The four processes in problems)

The boys and girls in Miss Black's room wanted to make their room look prettier. They had to buy some cloth and paper, but they did all their own work.

1. Tom and Bill cleaned 8 erasers. Each boy cleaned half of them. How many erasers did Tom clean?

2. Some of the girls made cloth covers for the chairs in the library corner. They used 2 yards of cloth for each chair. The cloth cost 43¢ a yard. How much did the cloth for each chair cost?

3. Mary and Bob put clean paper in all the bookcases. They used 24 feet of paper. How many yards of paper did they use?

4. Cloth for new window curtains cost $4.30. Cloth for covering the library chairs cost $1.72. How much money was spent for all the cloth?

5. All together it would cost the boys and girls $9.58 for the things they wanted to buy for their room. They had $7.72 which they had earned. How much more money did they need?

Big Ships

(Changing a ten and a hundred)

1. Jim went with his father to see two big ships. One was 420 feet long. The other was 296 feet long. What was the difference in the length of the ships?

a. Six ones cannot be subtracted from 0 ones. How do we get enough ones?

b. How many tens are left after we change 1 ten to 10 ones?

c. We cannot subtract 9 tens from the 1 ten we have left. Where do we get more tens? How many do we get?

d. How many hundreds are left after we change 1 hundred to 10 tens?

e. How do we get each figure in the difference?

A

$$\begin{array}{r} 420 \text{ feet} \\ -296 \text{ feet} \\ \hline 4 \text{ feet} \end{array}$$

B

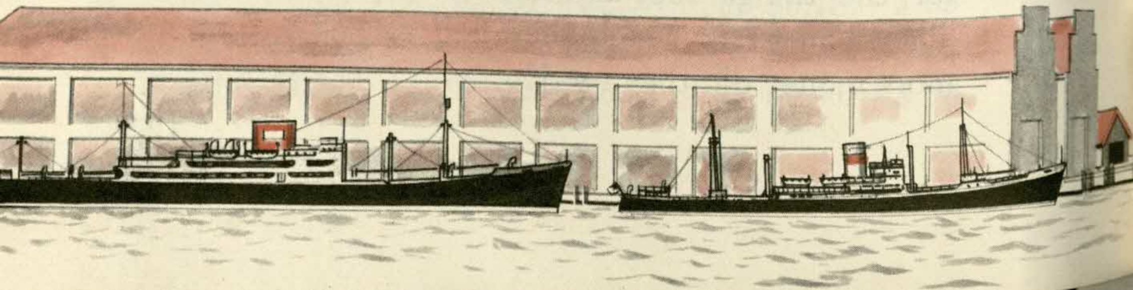
$$\begin{array}{r} 420 \text{ feet} \\ -296 \text{ feet} \\ \hline 124 \text{ feet} \end{array}$$

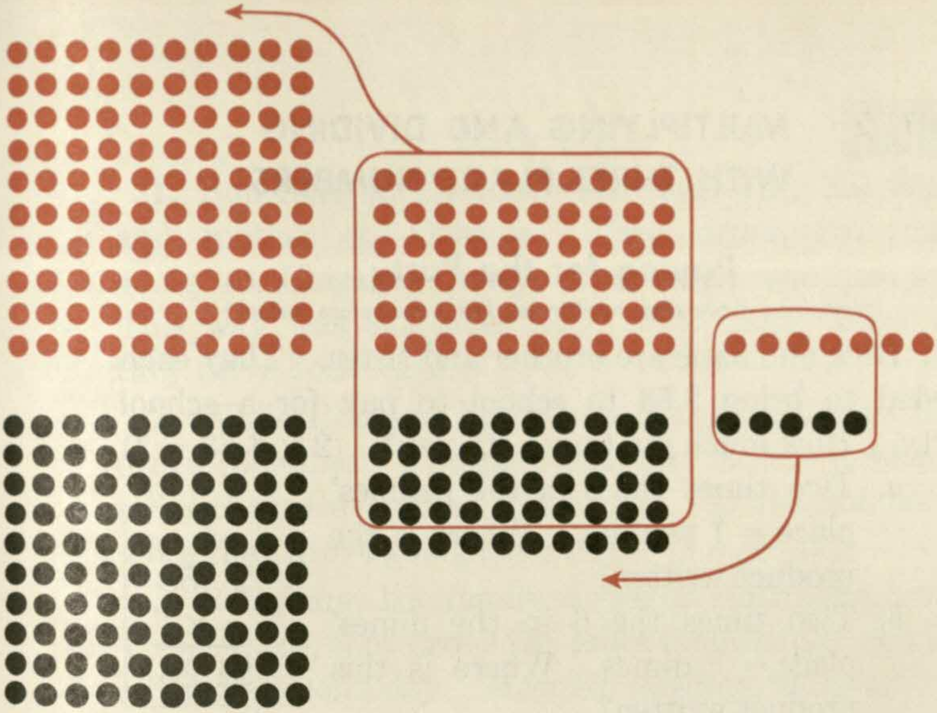
If we need to, we can change a ten to ones and a hundred to tens in the same subtraction example.

In subtraction, when we change a ten or a hundred we sometimes say we **borrow.**

2. Copy these examples and subtract. Change tens to ones and hundreds to tens only if you need to do so. Check by adding up.

a. 340−29
b. 450−45
c. 425−87
d. 535−167
e. 576−278
f. 990−936
g. 675−670
h. 879−173
i. 907−734
j. 293−79
k. 437−98
l. 208−76





$$\begin{array}{r} 167 \\ +\,155 \\ \hline 322 \end{array}$$

Review of Unit 1

1. The picture above shows 167 + 155 = 322. Explain how the picture shows:

a. that you change 10 ones to 1 ten.
b. that you change 10 tens to 1 hundred.
c. the 3 hundreds in the answer.
d. the 2 tens in the answer.
e. the 2 ones in the answer.

2. Copy the examples below and add:

a. 135 + 374 *d.* \$3.45 + \$4.95 *g.* 234 + 98
b. 431 + 297 *e.* \$2.58 + \$4.38 *h.* 534 + 67
c. 426 + 393 *f.* \$3.57 + \$3.49 *i.* 657 + 66

3. Copy the examples below and subtract:

a. 654 – 493 *d.* \$8.45 – \$2.78 *g.* 456 – 89
b. 748 – 585 *e.* \$9.56 – \$3.69 *h.* 753 – 86
c. 539 – 487 *f.* \$7.54 – \$4.47 *i.* 915 – 79

UNIT 2 MULTIPLYING AND DIVIDING WITH THREE-PLACE NUMBERS

Paying for the Party

(Multiplying a two-place number, product a three-place number)

1. Dick and Jane are brother and sister. They each needed to bring \$.63 to school to pay for a school party. How much did they both pay? (2 × \$.63 = ?)

a. Two times the 3 in the pennies' place = ? pennies. Where is the product written?

b. Two times the 6 in the dimes' place = ? dimes. Where is this product written?

c. 12 dimes = 1 dollar and 2 dimes. How does the decimal point in the product help to show that this is true?

d. What does **B** show?

A
\$ .63
×2
\$1.26

B
\$ .63
+.63
\$1.26

When we have 10 or more tens in the product, we use hundreds' place to help show the product.

Copy these examples and multiply:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
2.	\$.51 ×2	\$.72 ×2	\$.64 ×2	\$.80 ×2	41 ×3	53 ×3	62 ×3	93 ×2
3.	\$.74 ×2	\$.60 ×2	\$.82 ×2	\$.91 ×2	83 ×3	92 ×3	52 ×3	61 ×3
4.	\$.70 ×2	\$.50 ×3	\$.71 ×3	\$.62 ×2	63 ×2	72 ×3	54 ×2	70 ×3

Long Trips

1. Bob lives in Detroit. He rode with his father and mother to Chicago. They drove 287 miles going to Chicago. They came back another way. This way was 315 miles long. How many miles did they drive both ways?

2. While Bob and his family were in Chicago they drove 135 miles. Compare that with: *a.* the number of miles they drove going to Chicago. *b.* the number of miles they drove going home.

3. Betty and her family drove to their lake home. To get there, they drove 285 miles the first day and 277 miles the second day. How far was it to the lake?

4. How much farther did Betty and her family ride the first day than the second day?

Time for Practice

1. Copy these examples and add:

a. 348 + 459
b. 557 + 367
c. 146 + 489
d. 56 + 58
e. 46 + 86
f. 42 + 88
g. 33 + 87
h. 35 + 67
i. 38 + 78
j. 67 + 33
k. 23 + 98
l. 67 + 95

Copy these examples and write the answers.

	a	*b*	*c*	*d*
2.	2 × 94¢	63 + 98	160 − 79	8 + 3 + 9 + 6
3.	6 × 30¢	35 + 86	176 − 87	96 + 94 + 78
4.	4 × 32¢	77 + 38	133 − 64	94 + 99 + 30 + 89

Copy these examples and write the answers:

	a	*b*	*c*	*d*	*e*	*f*	*g*
5.	4 × 3	4 × 2	3 × 4	4 × 3	3 × 5	8 × 2	9 × 3
6.	2 × 5	3 × 6	3 × 8	2 × 9	2 × 6	3 × 9	2 × 8
7.	7 × 5	9 × 4	8 × 5	8 × 4	9 × 5	7 × 4	6 × 5

At the Swimming Pool

(The four processes in problems)

1. It costs 20¢ to go swimming at the pool in the park. Jim took his friends Bill and Ted swimming there. How much did it cost Jim for all three boys?

2. The pool is 9 feet deep in the deepest part. The other end of the pool is only one third as deep. How deep is the other end of the pool?

3. This pool is 60 feet long and 30 feet wide. *a.* Jim went the length of the pool and back again to where he started. How far did he swim?

b. Bill went across the pool and back. How far did he swim?

★**4.** Ted walked all around the pool at the edge before he went swimming. Jim called, "Why are you walking so far?" Ted said, "It is not far." How far was it? (The numbers you need are in Problem **3.** If it will help you, draw a picture. Show where Ted walked and how far he went on each side to get all the way around.)

★**5.** A little boy came to the pool. He was 39 inches tall. The pool is at least 3 feet deep everywhere. Is it safe for the little boy to play in the pool if he cannot swim? (You will need to change 3 feet to inches.) Remember that the boy must hold his head above water.

Jane Goes to the Store

(Information and problem solving)

1. Jane helped her mother get ready for a party. She went to the food store and asked for 2 quarts of milk. The clerk said, "I have only pint bottles of milk today." How many pint bottles did Jane have to buy to equal 2 quarts?

2. At the candy store Jane bought ice cream. She needed enough for 12 people. The man said, "You can get 6 dishes from 1 quart." How many quarts did Jane need to buy?

3. Jane paid 80¢ a quart for the ice cream. What pieces of money do you think she used to pay for it?

4. Next Jane bought flowers for 75¢. How much change should she get from a $1 bill?

Time for Practice

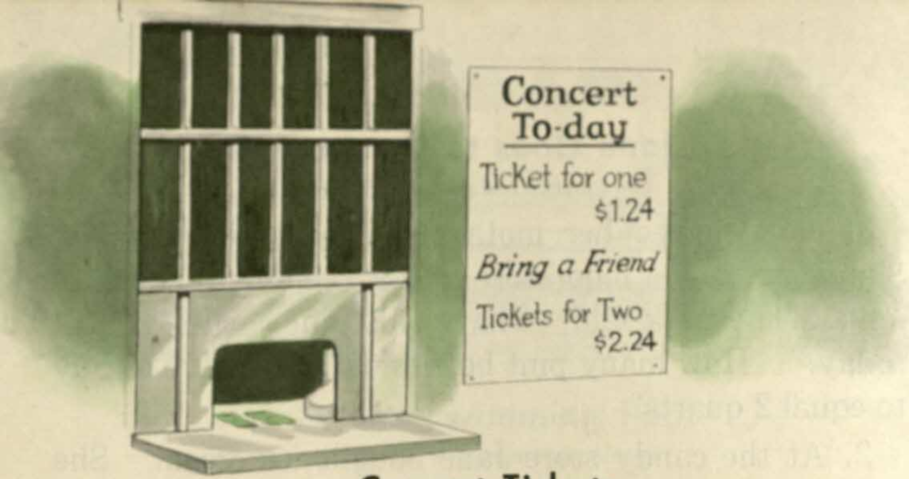
Copy these examples and subtract:

	a	*b*	*c*	*d*	*e*
1.	734−586	251−83	743−97	605−283	470−8
2.	471−292	703−89	493−28	317−199	602−4
3.	870−296	915−87	751−48	316−298	541−8
4.	570−198	402−85	162−56	522−347	176−9

Do It Quickly

Do these examples without writing if you can. Watch the signs.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	470 +100	208 +590	240 +706	260 +307	142 −80	133 −50	119 −40	138 −40
2.	207 +760	280 +507	460 +105	63 +60	149 −50	136 −80	143 −60	102 −10



Concert Tickets

(Multiplying and dividing three-place numbers)

1. Mrs. White and Mrs. Brown went to a concert. Look at the sign in the picture. How much did each woman have to pay for 1 ticket? How much would 2 single tickets cost? 2 × $1.24 = ?

a. 2 × 4 pennies = ? pennies
b. 2 × 2 dimes = ? dimes
c. 2 × 1 dollar = ? dollars
d. Check by adding. $1.24 + $1.24 = ? It should equal $2.48. Why?

A

$$\begin{array}{r} \$1.24 \\ \times 2 \\ \hline \$2.48 \end{array}$$

2. Look at the sign in the picture again. If Mrs. White bought 2 tickets at one time (1 for herself and 1 for Mrs. Brown) how much would the 2 tickets cost? How much is that for each? $2.24 ÷ 2 = ?

a. 2 dollars ÷ 2 = ? dollars
b. 2 dimes ÷ 2 = ? dimes
c. 4 pennies ÷ 2 = ? pennies
d. Check by multiplying. 2 × $1.12 = ? It should equal $2.24. Why?

B

$$\begin{array}{r} \$1.12 \\ 2\overline{)\ \$2.24} \end{array}$$

★**3.** How much did each woman save by buying the tickets the second way?

Keep Your Skill

Copy these examples and multiply. When you write the product, be sure to have ones under ones, tens under tens, and hundreds under hundreds.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	\$1.32 ×2	\$4.03 ×2	\$4.13 ×2	\$2.42 ×2	320 ×2	322 ×2	113 ×2	212 ×4
2.	\$3.10 ×3	\$2.23 ×3	\$2.13 ×3	\$2.11 ×4	321 ×2	324 ×2	143 ×2	102 ×3

We multiply and divide hundreds just as we multiply and divide tens and ones.

Copy these examples and divide. When you write the quotients, be sure to have ones over ones, tens over tens, and hundreds over hundreds.

	a	*b*	*c*	*d*	*e*	*f*
3.	$2\overline{)\$2.46}$	$3\overline{)\$3.69}$	$2\overline{)\$8.64}$	$3\overline{)609}$	$2\overline{)840}$	$3\overline{)900}$
4.	$3\overline{)\$6.00}$	$2\overline{)\$8.48}$	$3\overline{)\$9.30}$	$2\overline{)604}$	$3\overline{)993}$	$2\overline{)226}$

5. *a.* \$6.42 ÷ 2 *c.* \$9.63 ÷ 3 *e.* \$6.22 ÷ 2
b. 402 ÷ 2 *d.* 933 ÷ 3 *f.* 600 ÷ 2

6. Copy these examples and subtract:
a. 417 − 236 *c.* 670 − 383 *e.* 630 − 154
b. 607 − 134 *d.* 514 − 387 *f.* 469 − 227

7. Subtract 397 from each number below:
a. 700 *d.* 811 *g.* 825 *j.* 436 *m.* 562 *p.* 973
b. 611 *e.* 822 *h.* 736 *k.* 947 *n.* 673 *q.* 584
c. 535 *f.* 474 *i.* 477 *l.* 664 *o.* 637 *r.* 921

★**8.** You can subtract 397 from any number by subtracting 400 and adding 3 to your remainder. Why? Try it with the numbers in Exercise 7 above.

Put Together and Take Apart

(The four fundamental processes)

Most of arithmetic is just **putting together** and **taking apart.** Remember that as you answer these questions:

1. When you have two or more groups of things and you want to have them all in one bigger group, you may **add.** Do you **put together** or **take apart?**

2. When the groups you want to **put together** are all the same size, what can you do in place of adding?

3. When you have one group of things and want to make two smaller groups of it, you may **subtract.** Do you **put together** or **take apart?**

4. When a group is to be **taken apart** into two or more smaller groups and all of the smaller groups are to be the same size, what do you do in place of subtracting?

5. Copy and fill the blanks with the words **add, subtract, multiply,** or **divide:**

- *a.* When you put together in arithmetic, you either ? or ?.
- *b.* When you take apart, you either ? or ?.
- *c.* The smaller groups that are put together or taken apart must all be the same size when you ? or ?.
- *d.* The smaller groups that are put together or taken apart may be either the same or different sizes when you ? or ?.

★6. Take 10 books or other things. Group them in different ways to show how you put together and take apart to: *a.* add. *b.* subtract. *c.* multiply. *d.* divide.

How Well Can You Work Problems?

(Problem Test 8)

1. Ted and Ann went to stay with their Uncle Dan on his farm. To get there, they rode 184 miles by bus and 27 miles in Uncle Dan's car. How far did they ride from home?

2. The bus tickets cost $4.12 each. How much did both bus tickets cost?

3. On the farm Ted counted 5 rows of apple trees with 8 trees in each row. How many apple trees were there?

4. One day Ted picked 24 boxes of berries. Ann picked 18 boxes. Uncle Dan picked 36 boxes. How many boxes of berries did they all pick?

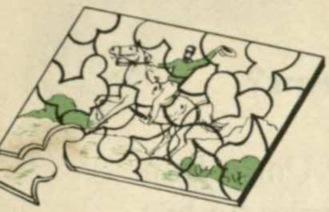
5. Uncle Dan said that last year he sold 320 boxes of berries. This year so far he has sold 284 boxes. How many more will he need to sell if he sells as many as he sold last year?

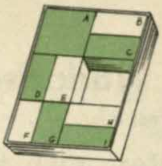
6. Uncle Dan sold berries for $.16 a quart. Ann said that her mother paid $.31 a quart in the city. What was the difference in price?

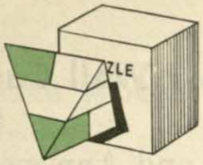
7. Ann helped pack apples in boxes. She could pick up 2 apples in her hand at a time. How many times did she pick up 2 apples to put 84 apples in a box?

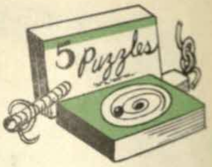
8. Twenty apples were put in a small box. There were four rows of apples. How many apples were in each row?

9. Ann had $2.50 with her for spending money. One day when she went to town with Uncle Dan, she spent $.69. How much did she still have?









Problems About Puzzles

1. Jim likes to do puzzles. He has one puzzle that has 18 pieces. One day he wanted to do the puzzle, but he did not have all the pieces. Jim said, "I have only half the pieces." How many pieces did he have?

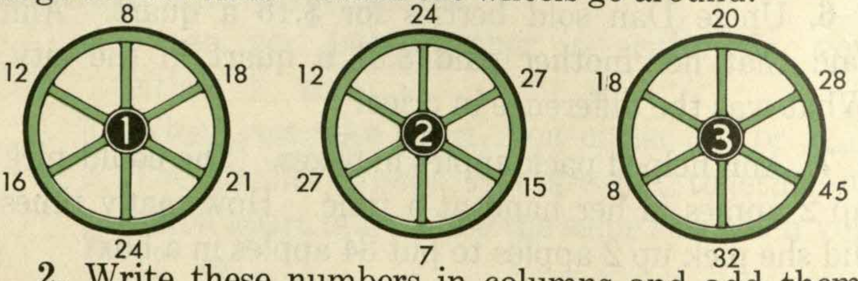
2. Jim looked and found some more pieces. Then he had 15 pieces. How many were still lost?

3. Joe has a puzzle that has 7 white blocks and 7 red blocks. How many blocks are there in all? (Do this problem in two different ways.)

Make the Wheels Go Around

(Review of adding by endings)

1. Every wheel in the picture has a number in the middle. Add that number to each number around the edge of the wheel. Make the wheels go around.



2. Write these numbers in columns and add them. You may need to carry 1, 2, 3, or 4 tens.

a. 33, 52, 15, 16

b. 35, 49, 16, 25

c. 15, 17, 39, 26

d. 34, 57, 82, 39

e. 38, 29, 37, 38, 32

f. 39, 59, 28, 58, 47

g. 13, 58, 49, 27, 36

h. 18, 38, 59, 48, 59

Dresses To Be Cleaned

(Carrying in multiplication)

1. "Helen," said her mother, "bring me your blue dress and your red dress. We can get them cleaned now for 49¢ each." How much will it cost to have both dresses cleaned? We can add or we can multiply.

a. In Example **A** what is the sum of the pennies' column? What is carried?

b. What is the sum of the dimes' column? Where is it written?

c. In **B** two times 9 pennies = ? pennies.

d. 18 pennies = 1 dime and ? pennies

e. Where is the 8 written? What is done with the 1 dime?

f. Two times 4 dimes = ? dimes.

g. Add the 1 dime you carried. 8 dimes + 1 dime = ? dimes. Where is the 9 written? Why?

A 1
$.49
+.49
$.98

B 1
$.49
×2
$.98

We carry tens in multiplication as we carry dimes or tens in addition.

Copy these examples and multiply.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
2.	$.15 ×2	$.26 ×2	$.37 ×2	$.48 ×2	59 ×2	64 ×3	75 ×3	86 ×3
3.	$.35 ×4	$.24 ×5	$.56 ×3	$.46 ×5	78 ×4	68 ×2	97 ×5	88 ×4
4.	$.89 ×5	$.28 ×5	$.32 ×6	$.13 ×7	33 ×9	28 ×4	24 ×9	32 ×8

Each Paid Half of the Cost

(Dividing a three-place number, quotient a two-place number)

1. Ruth and Ann gave a party together. The lunch cost them $1.44. Each girl paid half of the cost. How much did each girl pay? Explain Example **A.**

a. We cannot divide the 1 dollar by 2 without changing it to dimes. How many dimes are there in 1 dollar?

A

$$\begin{array}{r} .72 \\ 2\overline{)\$1.44} \end{array}$$

b. 10 dimes + 4 dimes = ? dimes.

c. 14 dimes ÷ 2 = ? dimes. Where do you write the 7?

d. 4 pennies ÷ 2 = ? pennies. Where do you write the 2?

e. Tell why each quotient figure is written where it is.

f. Study Example **B.** We check division by multiplying. Why can we do that?

B

$$\begin{array}{r} \$\ .72 \\ \underline{\times 2} \\ \$1.44 \end{array}$$

> If there are not enough dollars to divide, we change the dollars to dimes and divide all the dimes at once.

2. Copy and divide. Check by multiplying.

a. $2\overline{)\$2.40}$ *c.* $3\overline{)\$3.69}$ *e.* $2\overline{)\$4.68}$ *g.* $5\overline{)355}$ *i.* $5\overline{)305}$

b. $3\overline{)\$1.53}$ *d.* $2\overline{)\$1.28}$ *f.* $3\overline{)\$1.80}$ *h.* $2\overline{)146}$ *j.* $4\overline{)368}$

Copy these examples and divide. Be careful to write each figure in the quotient in the right place.

	a	*b*	*c*	*d*	*e*
3.	126÷2	240÷3	862÷2	$9.00÷3	$4.50÷9
4.	840÷2	396÷3	276÷3	$3.20÷8	$3.24÷4

Time for Practice

Copy these examples and write the answers:

	a	*b*	*c*	*d*	*e*	*f*
1.	6÷3	10÷5	3×4	5×2	3×6	410+106
2.	2×8	12÷6	6×3	2×9	6×2	306+470
3.	2×5	8÷4	7×2	2×6	4×2	695−578

Review of Unit 2

Copy the examples below and multiply:

	a	*b*	*c*	*d*	*e*	*f*
1.	$ .71 ×2	$ .42 ×3	52 ×4	20 ×5	84 ×2	73 ×3
2.	$1.32 ×2	$3.10 ×3	201 ×4	110 ×5	223 ×2	111 ×6
3.	$ .29 ×2	$ .25 ×3	28 ×4	17 ×5	36 ×3	29 ×3
4.	$ .43 ×4	$ .63 ×5	54 ×5	67 ×4	68 ×3	56 ×2

Copy the examples below and divide:

	a	*b*	*c*	*d*	*e*	*f*
1.	$2\overline{)\$8.42}$	$3\overline{)\$3.69}$	$4\overline{)844}$	$3\overline{)669}$	$2\overline{)640}$	$2\overline{)448}$
2.	$2\overline{)\$1.24}$	$2\overline{)\$1.48}$	$3\overline{)126}$	$3\overline{)183}$	$2\overline{)160}$	$4\overline{)168}$
3.	$3\overline{)\$2.19}$	$2\overline{)\$1.84}$	$3\overline{)240}$	$4\overline{)124}$	$3\overline{)276}$	$5\overline{)155}$
4.	$5\overline{)\$2.50}$	$4\overline{)\$2.48}$	$3\overline{)156}$	$4\overline{)280}$	$4\overline{)328}$	$5\overline{)205}$

UNIT 3 MEANINGS OF FRACTIONS AND WHOLE NUMBERS

How Are They Sold?

(Common Measures)

1. Show that you know how things are sold. Tell which part of Column **B** goes with each part of Column **A.** Do not write in this book.

A	B
a. Rolls are sold	by the dozen or by the bunch.
b. Milk is sold	
c. Flowers are sold	by the dozen.
d. Cream is sold	by the quart or pint.
e. Ice cream is sold	by the pound.
f. Meat is sold	by the pair.
g. Shoes are sold	by the half-pint.

2. Which of these things are sold *a.* by the dozen? *b.* by the pound? *c.* by the pair? *d.* one at a time?

cake potatoes dresses candy apples
gloves oranges pens eggs coffee

3. Which of these are always the same? Which may not always be as much and still have the same name?

a. pound *c.* quart *e.* package
b. bunch *d.* dozen *f.* pair

★4. Bring to school an empty quart-size milk bottle and an empty quart-size ice-cream box. How can you find out if they are equal in size? Compare how much each can hold.

★5. Make a list of all the things you know that are sold by: *a.* dozens *b.* pounds *c.* pairs

Counting

1. Begin with the number 4 and count as far as 92 by 4's. Say: 4, 8, 12, 16, and so on.

2. Begin with the number 21 and count to 81 by 3's.

3. Count from 100 backward to 6 by 2's. Say: 100, 98, 96, and so on.

4. Count from 5 to 100 by 5's.

5. Begin with 251 and count by 3's to 290.

6. Count backward by 5's from 235 to 190.

★**7.** Start with the number 92. Add 7's, like this: 92, 99, 106, and so on. Keep going until you get to 155.

★**8.** Start with the number 152. Subtract 8's, like this: 152, 144, 136, and so on. Keep subtracting until you get to zero.

Which Number?

Copy the numbers below on a sheet of paper. Then answer these questions.

1	11	21
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
10	20	30

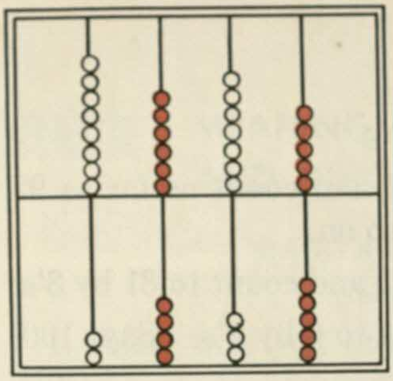
1. Which numbers are even numbers? Circle all the even numbers.

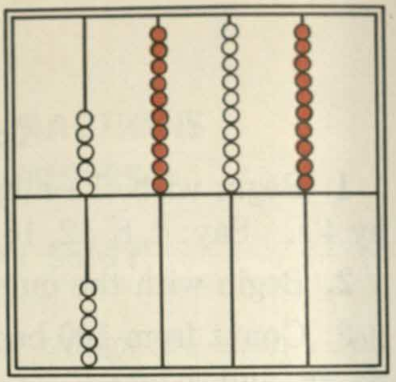
2. Now look at all the numbers that are not in circles (not even). What do we call the numbers that are not even?

★**3.** Which numbers are products when we multiply numbers by 3? Draw a square around each product of 3.

★**4.** Which numbers are the products when we multiply numbers by 4? Draw marks around them like this: ( )

★**5.** Make up "Which number?" questions of your own and answer them by marking on your chart.


A


B

Thousands

1. Look at each abacus picture. Count the beads that are below the wire on each rod. How many beads

a. do you count on the ones' rod?
b. do you count on the tens' rod?
c. do you count on the hundreds' rod?
d. do you count on the thousands' rod? (The thousands' rod is the one on the left.)

2. This is how we read the numbers on each abacus.

A. Two thousand, 4 hundred, thirty-five.
B. Five thousand.

3. Why do we say only "thousand" when we read the number on Abacus **B?** Why do we not say "hundred" or "ten"?

4. The numbers below are 4-place numbers. Practice reading these 4-place numbers.

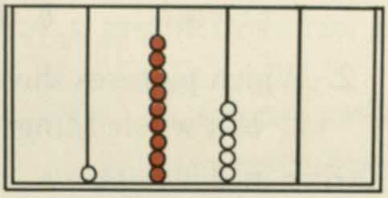
a.	4126	4 thousand, 1 hundred, twenty-six
b.	1378	1 thousand, 3 hundred, seventy-eight
c.	9456	9 thousand, 4 hundred, fifty-six
d.	3400	3 thousand, 4 hundred
e.	5057	5 thousand, fifty-seven
f.	1417	1 thousand, 4 hundred, seventeen
g.	2904	2 thousand, 9 hundred, 4
h.	8840	8 thousand, 8 hundred, forty

More Four-Place Numbers

Ann was born in the year 1950. Her mother was born in the year 1925. These are 4-place numbers, but we do not say "thousand" when we read them.

For 1950, we say: 19 hundred, fifty
For 1925, we say: 19 hundred, twenty-five
Sometimes we just say: nineteen, fifty
nineteen, twenty-five

1. Ann made a picture of part of an abacus to show when she was born. This is what it looked like.



a. 1 thousand = 10 hundreds

1 thousand + 9 hundreds are ? hundreds

b. Was Ann's picture right?

2. Draw a picture like Ann's, but make it show the year her mother was born.

a. How many marks will you make for ones?

b. How many marks will you make for tens?

c. How many marks will you make for hundreds?

d. How many marks will you make for thousands?

3. Read these "year numbers." Read them without saying "thousand":

a. 1958 *c.* 1776 *e.* 1924

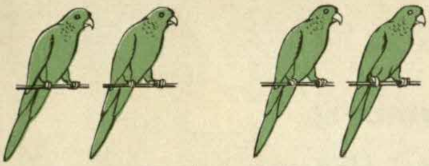
b. 1850 *d.* 1620 *f.* 1900

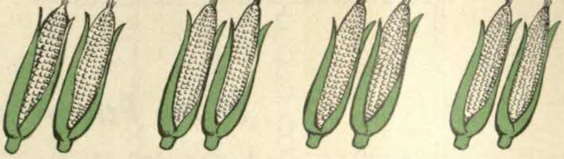
★**4.** How do we read house numbers? Do we say "thousand" when we read a 4-place house number?

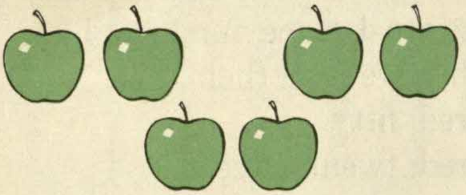
★**5.** Read these house numbers:

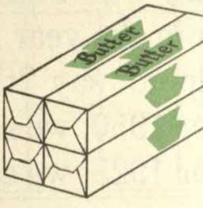
a. 1206 Tenth Street *c.* 4515 School Street

b. 3212 Elm Place









Fractions

1. Which pictures on this page show:
a. halves? *b.* thirds? *c.* fourths?

2. Which pictures show equal parts:
a. of a whole thing? *b.* of a group of things?

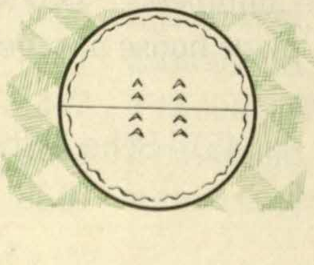
Earlier in this book we have written fractions with words, like this:

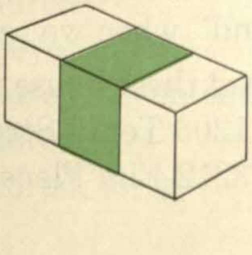
Now we are going to write the same fractions with figures, like this:

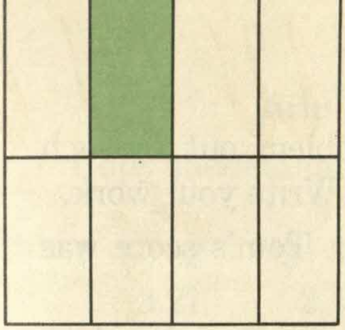
one half	$\frac{1}{2}$
one third	$\frac{1}{3}$
one fourth	$\frac{1}{4}$

3. When we took $\frac{1}{2}$ of a number, we divided by 2. When we took $\frac{1}{3}$ of a number, we divided by 3. When we took $\frac{1}{4}$ of a number, we divided by 4. Remember that as you copy the examples below and write the answers:

a. $\frac{1}{2}$ of $6 = ?$ *d.* $\frac{1}{3}$ of $9 = ?$ *g.* $\frac{1}{4}$ of $8 = ?$
b. $\frac{1}{2}$ of $12 = ?$ *e.* $\frac{1}{3}$ of $12 = ?$ *h.* $\frac{1}{4}$ of $12 = ?$
c. $\frac{1}{2}$ of $18 = ?$ *f.* $\frac{1}{3}$ of $24 = ?$ *i.* $\frac{1}{2}$ of $14 = ?$







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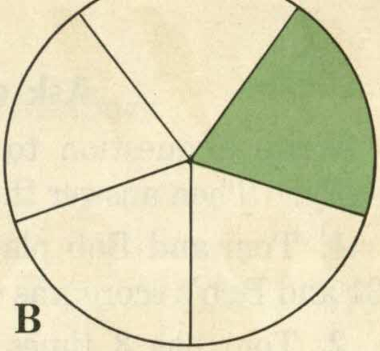


B

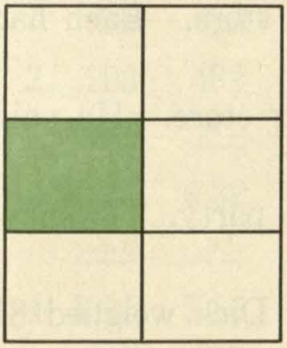
The Name of a Fraction

1. Every fraction has a name. Tell the name of the fraction when a whole thing or a group of things is divided into:

a. 2 equal parts *b.* 3 equal parts *c.* 4 equal parts

2. The pictures on this page show some more fractions. The names are given below. Tell which picture on this page goes with each name.

5 equal parts are called fifths $\frac{1}{5}$ one fifth
6 equal parts are called sixths $\frac{1}{6}$ one sixth
8 equal parts are called eighths $\frac{1}{8}$ one eighth
10 equal parts are called tenths $\frac{1}{10}$ one tenth
12 equal parts are called twelfths $\frac{1}{12}$ one twelfth



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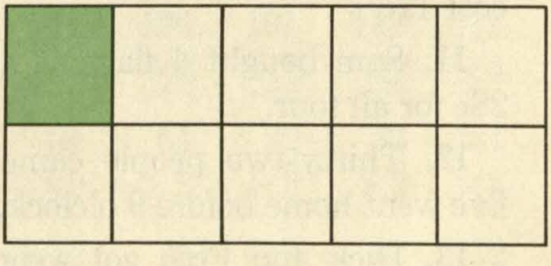
D



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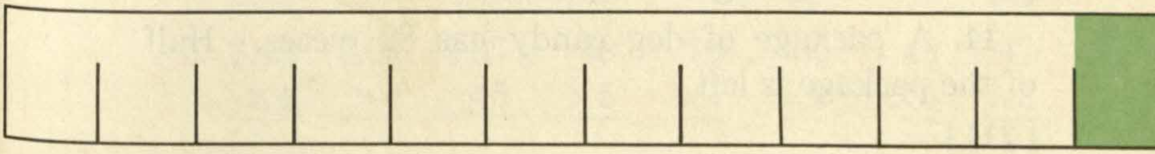

Ask and Answer

Write a question to make a problem out of each story. Then answer the question. Write your work.

1. Tom and Bob played a game. Tom's score was 31 and Bob's score was 46.

2. Tom has 3 times as many marbles as Jim has. Jim has 29 marbles.

3. There were 16 cookies in a box. Half of them were eaten.

4. Ted has 62 papers to carry around each day. Joe carried 27 for him one day.

5. Miss Hill wanted 35 new library books. She got only 28.

6. Alice saved 47¢ last month and 96¢ this month.

7. Ted had 24 marbles. He lost 9 of them.

8. There were 30 pieces of candy in a box. Jack and his friends ate 8 pieces.

9. Mary and Jane were playing a game. One player had to make 100. Mary had 37.

10. Jack bought 4 flags at the toy store. Each flag cost 12¢.

11. Sam bought 4 flags at another store. He paid 28¢ for all four.

12. Thirty-two people came to a party. Twenty-five went home before 9 o'clock.

13. Dick and Fred got weighed. Dick weighed 81 pounds. Fred weighed 56 pounds.

14. A package of dog candy has 82 pieces. Half of the package is left.

Adding Larger Numbers

Copy these examples and add:

	a	b	c	d	e	f
1.	$2.02	$4.50	$6.06	302	540	187
	3.27	2.44	1.70	404	358	510
2.	$ .27	$ .38	$5.26	218	347	278
	.38	.46	1.19	69	23	102
3.	$ .59	$ .18	$ .68	77	47	63
	.84	.85	.74	85	59	67
4.	$3.70	$2.63	$6.94	846	770	522
	2.46	3.46	1.63	93	59	282
5.	$4.57	$6.26	$5.04	484	283	239
	2.78	2.96	2.96	127	488	583

Multiplying Two- and Three-Place Numbers

Copy these examples and multiply:

	a	b	c	d	e	f	g	h
1.	40	20	31	$.13	$.23	$.32	$.11	22
	×2	×4	×2	×3	×3	×3	×4	×2
2.	103	432	124	312	420	101	132	212
	×3	×2	×2	×3	×2	×6	×2	×4
3.	$.41	$.32	$.80	31	54	72	83	31
	×3	×4	×3	×9	×2	×2	×2	×8
4.	$.25	$.36	$.45	12	26	19	39	12
	×3	×2	×2	×7	×3	×3	×2	×5
5.	$.45	$.69	$.37	48	78	56	49	47
	×4	×4	×5	×5	×4	×5	×5	×3

84 **96** **60** **39**

Take a Number

1. Take one of the red numbers in the squares:

a. Add 59 to it.

b. Subtract 36 from it.

c. Multiply it by 4.

d. Divide it by 2.

2. Take one of the black numbers in the squares:

a. Add 48 to it.

b. Subtract 6 from it.

c. Multiply it by 3.

d. Divide it by 3.

3. Now do Exercise **1** again. Use the other red number in a square.

4. Do Exercise **2** again. Use the other black number in a square.

5. Take each of these numbers, one at a time. Divide it by 4: *a.* 488 *b.* 444 *c.* 248 *d.* 160

6. Take each of these numbers, one at a time. Multiply it by 5: *a.* 37 *b.* 59 *c.* 12 *d.* 46.

Find the Families

1. Copy the examples below so that they make families. Copy each family together. Write the products and quotients. Here is one family:

$20 \div 5 = 4$ $4 \times 5 = 20$ $5 \times 4 = 20$ $20 \div 4 = 5$

$5 \times 6 = ?$
$8 \times 5 = ?$
$4 \times 5 = ?$
$4 \times 8 = ?$
$7 \times 4 = ?$
$5 \times 4 = ?$
$6 \times 5 = ?$
$5 \times 8 = ?$
$4 \times 7 = ?$
$8 \times 4 = ?$
$30 \div 5 = ?$
$28 \div 4 = ?$
$20 \div 4 = ?$
$40 \div 5 = ?$
$32 \div 4 = ?$
$28 \div 7 = ?$
$40 \div 8 = ?$
$32 \div 8 = ?$
$20 \div 5 = ?$
$30 \div 6 = ?$

★**2.** Draw a picture to go with each family.

	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9	10
2	3	4	5	6	7	8	9	10	11
3	4	5	6	7	8	9	10	11	12
4	5	6	7	8	9	10	11	12	13
5	6	7	8	9	10	11	12	13	14
6	7	8	9	10	11	12	13	14	15
7	8	9	10	11	12	13	14	15	16
8	9	10	11	12	13	14	15	16	17
9	10	11	12	13	14	15	16	17	18

An Addition and Subtraction Chart

1. It is easy to find addition sums on the chart at the top of this page. Do this to find $4 + 5 = ?$

- *a.* Find the red 4 in the left column. Put your pencil so it covers the line under the 4.
- *b.* Find the red 5 in the top row. Look down that column until you come to your pencil.
- *c.* The number you see there is the sum of $4 + 5$. What is it?

2. Look at the number chart again. It shows subtraction answers too. This is how you use it to find $10 - 3 = ?$

- *a.* Find the row with the red 3 in the left column.
- *b.* Find the number 10 somewhere in the same row with the red 3.
- *c.* Look at the top of the column that has that 10 in it. What red number is at the top?

3. Use the chart to find other sums and remainders.

★**4.** Make a number chart of your own. Put 2-place numbers in the top row and the left column.

	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18
3	6	9	12	15	18	21	24	27
4	8	12	16	20	24	28	32	36
5	10	15	20	25	30	35	40	45
6	12	18	24	30				
7	14	21	28	35				
8	16	24	32	40				
9	18	27	36	45				

A Multiplication and Division Chart

1. The chart above helps with multiplication. Find the answer to 3 × 4 = ? Find it like this:

a. Find the red 3 in the left column. Put your pencil so it covers the line under the 3.

b. Find the red 4 in the top row. Look down that column until you come to your pencil.

c. The number you see there is the product of 3 × 4 = ? What is it?

2. The chart helps with division too. Find the answer to 15 ÷ 3 = ? Find the quotient like this:

a. Find the row of numbers that begins with the red 3.

b. Find the number 15 in that same row.

c. Look at the top of the column with that 15 in it. What red number is at the top? 15 ÷ 3 = ?

3. Use the number chart to find other products and quotients.

★4. Make a number chart of your own. See if you can figure out what numbers go in the squares that are not filled in above.

Problem Practice

1. Four hundred twenty-five children go to the Lewis School. Of these, 317 children were in Lewis School last year. How many are new this year?

2. Ruth earned $1.45 last week. She earned $2.05 this week. How much did she earn in all?

3. Jack opened a box of cookies. There were 24 cookies in the box. Jack divided them equally among four boys and girls. How many did each child get?

4. Alice is 12 years old. Her mother is three times as old as Alice. How old is her mother?

5. Joe earned $4.58. He spent $3.67. How much money did he have left?

6. Mr. Brown is 74 inches tall. Mr. Smith is 68 inches tall. How much taller is Mr. Brown?

7. Helen has to make 15 paper baskets for a party. If she makes 5 baskets each day, how many days will it take her to make the 15 baskets?

8. Bill bought 2 books at $.75 each. How much did both books cost?

9. Carl read 27 pages in one book, 49 pages in another book, and 14 pages in a third book. How many pages did he read?

10. Sue needs 34 sheets of paper for a book she is making. She has only 29 sheets. How many more sheets does Sue need?

11. It is 94 miles to Ann's home by air. It is 110 miles by car. What is the difference?

12. Two towns are 13 miles apart. How far is a "round trip" (both ways) between them?

Do It Quickly

Say the answers to these examples quickly:

1.	147	14	50	30	22	171	168	129
	−70	+90	+60	+15	+10	−80	−90	−90

2. How much money do you have in all if you have:

a. a $5 bill, a half dollar, 2 dimes, and 3 pennies?
b. two $1 bills, a quarter, and 3 nickels?

Review of Unit 3

1. Read the 4-place numbers below. Read them as if they told what year something happened.

a. 1492 *c.* 1941 *e.* 1826
b. 1860 *d.* 1955 *f.* 1900

2. Read the same numbers again. Read them this time as if they told how many dollars a car costs.

3. What do we call all numbers that are written like the numbers below?

$\frac{1}{2}$ $\frac{1}{5}$ $\frac{1}{8}$ $\frac{1}{10}$

4. What is the name of each number in Exercise 3?

5. Draw a square. With your pencil divide it into fourths. Write "$\frac{1}{4}$" on each fourth.

6. Draw 15 apples. Draw a ring around $\frac{1}{3}$ of them.

7. Copy the examples below. Write the answers.

a. $6 \times 4 = ?$ *e.* $45 \div 9 = ?$ *i.* $\frac{1}{4}$ of $36 = ?$
b. $4 \times 9 = ?$ *f.* $24 \div 4 = ?$ *j.* $\frac{1}{3}$ of $27 = ?$
c. $9 \times 4 = ?$ *g.* $35 \div 7 = ?$ *k.* $\frac{1}{2}$ of $16 = ?$
d. $4 \times 6 = ?$ *h.* $24 \div 6 = ?$ *l.* $\frac{1}{5}$ of $25 = ?$

8. There is only one whole family of 4 multiplication and division facts in Exercise 7 above. Write the four facts in that family.

How Much Have You Learned?

(Chapter Test 8)

Copy these examples and add:

	a	*b*	*c*	*d*	*e*	*f*
1.	237 680	153 773	433 191	347 470	\$2.73 5.55	\$1.42 6.84
2.	457 178	355 549	538 193	259 697	\$1.87 6.56	\$2.83 1.67

Copy these examples and subtract:

3.	702 590	859 575	968 377	869 482	\$8.73 6.90	\$6.59 2.88
4.	613 255	823 684	422 196	831 484	\$7.51 5.92	\$6.62 5.64

Copy these examples and multiply:

5.	210 ×2	321 ×3	423 ×2	212 ×4	\$1.02 ×3	\$4.20 ×2
6.	32 ×4	83 ×2	64 ×2	73 ×3	\$ .91 ×2	\$ .82 ×3
7.	96 ×3	49 ×2	23 ×4	49 ×4	\$ .58 ×4	\$ .76 ×5

Copy these examples and divide:

8.	$2\overline{)204}$	$3\overline{)963}$	$2\overline{)684}$	$2\overline{)802}$	$3\overline{)\$3.06}$	$3\overline{)\$6.90}$
9.	$2\overline{)164}$	$3\overline{)243}$	$5\overline{)355}$	$4\overline{)248}$	$3\overline{)\$2.19}$	$4\overline{)\$1.24}$
10.	$6\overline{)306}$	$9\overline{)369}$	$2\overline{)102}$	$4\overline{)120}$	$2\overline{)\$1.86}$	$7\overline{)\$1.47}$

Improve Yourself Test: Subtraction of Larger Numbers

Copy these examples and subtract:

	a	b	c	d	e	f	
1.	$\begin{array}{r}\$3.45\\ \underline{2.23}\end{array}$	$\begin{array}{r}\$2.18\\ \underline{1.06}\end{array}$	$\begin{array}{r}\$4.75\\ \underline{4.24}\end{array}$	$\begin{array}{r}798\\ \underline{175}\end{array}$	$\begin{array}{r}897\\ \underline{233}\end{array}$	$\begin{array}{r}478\\ \underline{143}\end{array}$	(177 180)
2.	$\begin{array}{r}\$7.67\\ \underline{6.47}\end{array}$	$\begin{array}{r}\$6.66\\ \underline{5.62}\end{array}$	$\begin{array}{r}\$8.38\\ \underline{8.34}\end{array}$	$\begin{array}{r}346\\ \underline{33}\end{array}$	$\begin{array}{r}360\\ \underline{160}\end{array}$	$\begin{array}{r}155\\ \underline{150}\end{array}$	(182)
3.	$\begin{array}{r}\$7.30\\ \underline{5.27}\end{array}$	$\begin{array}{r}\$9.85\\ \underline{2.48}\end{array}$	$\begin{array}{r}\$5.42\\ \underline{2.09}\end{array}$	$\begin{array}{r}456\\ \underline{37}\end{array}$	$\begin{array}{r}372\\ \underline{58}\end{array}$	$\begin{array}{r}117\\ \underline{109}\end{array}$	(189 190)
4.	$\begin{array}{r}\$1.49\\ \underline{.56}\end{array}$	$\begin{array}{r}\$1.29\\ \underline{.55}\end{array}$	$\begin{array}{r}\$1.87\\ \underline{.96}\end{array}$	$\begin{array}{r}129\\ \underline{74}\end{array}$	$\begin{array}{r}148\\ \underline{60}\end{array}$	$\begin{array}{r}109\\ \underline{28}\end{array}$	(198)
5.	$\begin{array}{r}\$7.16\\ \underline{1.30}\end{array}$	$\begin{array}{r}\$8.06\\ \underline{6.92}\end{array}$	$\begin{array}{r}\$3.29\\ \underline{2.63}\end{array}$	$\begin{array}{r}502\\ \underline{430}\end{array}$	$\begin{array}{r}939\\ \underline{64}\end{array}$	$\begin{array}{r}649\\ \underline{89}\end{array}$	(290)
6.	$\begin{array}{r}\$4.50\\ \underline{2.74}\end{array}$	$\begin{array}{r}\$9.67\\ \underline{7.68}\end{array}$	$\begin{array}{r}\$5.66\\ \underline{4.78}\end{array}$	$\begin{array}{r}945\\ \underline{399}\end{array}$	$\begin{array}{r}522\\ \underline{63}\end{array}$	$\begin{array}{r}503\\ \underline{75}\end{array}$	(292 294)

Improve Yourself: Division of 2- and 3-Place Numbers

Copy these examples and divide:

	a	b	c	d	e	
1.	$3\overline{)90}$	$2\overline{)46¢}$	$3\overline{)39¢}$	$2\overline{)42}$	$3\overline{)63}$	(265
2.	$2\overline{)\$2.48}$	$2\overline{)\$4.66}$	$3\overline{)\$9.63}$	$2\overline{)802}$	$3\overline{)663}$	300)
3.	$2\overline{)\$1.20}$	$3\overline{)\$1.83}$	$2\overline{)\$1.42}$	$3\overline{)156}$	$2\overline{)168}$	(306)
4.	$2\overline{)\$1.84}$	$3\overline{)\$2.10}$	$2\overline{)\$1.00}$	$3\overline{)240}$	$5\overline{)155}$	
5.	$9\overline{)\$2.79}$	$9\overline{)\$1.80}$	$7\overline{)\$2.17}$	$5\overline{)105}$	$8\overline{)168}$	
6.	$4\overline{)\$2.40}$	$4\overline{)\$1.64}$	$4\overline{)\$3.28}$	$5\overline{)455}$	$5\overline{)400}$	
7.	$5\overline{)\$3.05}$	$5\overline{)\$2.50}$	$4\overline{)\$2.84}$	$4\overline{)368}$	$4\overline{)124}$	

Achievement Test: Part 1

1. You can change groups by adding, subtracting, multiplying, or dividing. Instead of each question mark below, say one of the four words in red:

Add Subtract Multiply Divide

a. When you put groups together, you either _?_ or _?_.

b. When you take groups apart to make smaller groups, you either _?_ or _?_.

c. When you put groups that are not equal together, you _?_.

d. When you put equal groups together to make one total group, you can usually do it quicker if you _?_.

e. When you take any group apart to make two groups, you usually _?_.

f. When you take a group apart to make two or more equal groups, you _?_.

2. Copy the black column below. After each part in the black column, copy something from the red column that means the same thing.

a. Multiplied by 2
b. Divided by 2
c. Quotients
d. Fractions
e. Products
f. Totals
g. Sums
h. Differences

twice as much
answers in multiplication
equal-sized parts
answers in division
half as much
answers in addition or multiplication
answers in subtraction
answers in addition

Achievement Test: Part 2

Copy the examples below. Add.

1.	334	220	345	52	41	43
	161	563	331	97	78	64
2.	212	253	312	233	246	332
	378	219	219	670	381	580
3.	336	355	565	546	259	346
	194	455	368	266	489	377

Copy the examples below. Subtract.

4.	879	985	986	119	109	158
	559	864	286	27	26	64
5.	883	961	763	847	938	747
	775	534	624	373	573	464
6.	972	871	922	551	660	724
	494	577	863	499	381	555

Copy the examples below. Multiply.

7.	7	9	7	30	20	30
	×2	×4	×5	×3	×4	×2
8.	12	41	11	54	73	82
	×3	×2	×5	×2	×3	×4
9.	48	28	34	212	234	302
	×2	×3	×4	×4	×2	×2

Copy the examples below. Divide.

10.	$2\overline{)16}$	$3\overline{)18}$	$4\overline{)20}$	$5\overline{)35}$	$8\overline{)32}$	$9\overline{)45}$
11.	$2\overline{)80}$	$4\overline{)84}$	$3\overline{)69}$	$2\overline{)842}$	$3\overline{)690}$	$4\overline{)848}$
12.	$3\overline{)243}$	$2\overline{)148}$	$4\overline{)288}$	$3\overline{)216}$	$2\overline{)128}$	$5\overline{)255}$

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